

Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 1/6/2021 6:47:55 PM
To: Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: **Hold for AAPCA Emissions Inventory Committee Meeting**
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx

Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Tentative

Required Attendees: Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison

Putting a hold on everyone's calendar for the Association of Air Pollution Control Agencies (AAPCA, <https://cleanairact.org/>) Emission Inventory Committee call on January 28 at 3PM Eastern.

This will be an opportunity to present an update on the NAEMS study to their member states. The presentation will be the same as the R7/NACAA slide deck (attached).

I will update with the specific call in information as soon as it is received.

Please let me know if you would like any additional staff added to the invite.

Bebhinn

919 541-0573 | do.bebhinn@epa.gov

Draft Emission Models for Swine Animal Feeding Operations

January 28, 2021

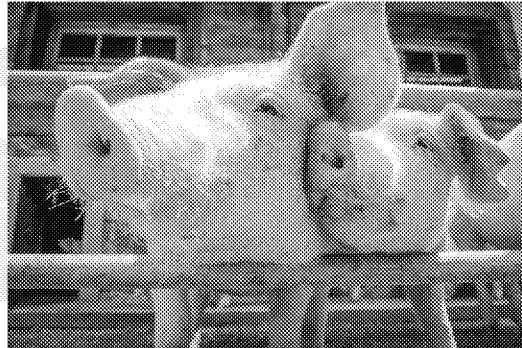


Introduction

- On August 20, 2020, EPA posted draft emission models for animal feeding operations (AFOs) raising swine.
- These draft emission models utilize data collected as part of the National Air Emissions Monitoring Study (NAEMS).
- The emission models provide methods for estimating air emissions of NH_3 , H_2S , and PM (TSP, PM_{10} , $\text{PM}_{2.5}$) from barns, lagoons, and basins at swine operations throughout the country.
- EPA developed approximately 30 emission models for the various emission source and pollutant combinations at swine operations.

Outline

- NAEMS Background
- Emission Models Development Overview
- Improvements from Previous Emission Models
- Uses of the Emission Models
- Limitations of the Emission Models
- Schedule



Background – AFO Air Compliance Agreement (Agreement)

- In 2005, the voluntary Agreement, which includes NAEMS, was initiated in response to a National Academy of Sciences report on the complexity of estimating AFOs' emissions from and industry's concern with ongoing EPA and citizen enforcement activity.
- The Agreement's goals were to:
 - (1) reduce air pollution;
 - (2) monitor AFO emissions;
 - (3) promote a national consensus on emission models; and
 - (4) ensure compliance with requirements of the Clean Air Act (CAA), as well as certain reporting requirements under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Emergency Planning and Community Right-to-Know Act (EPCRA).

Air Compliance Agreement

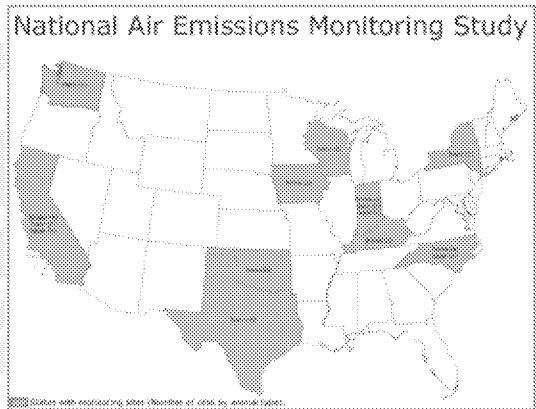
- EPA approved approximately 2,600 Agreements, representing nearly 14,000 participating AFOs.
- Participants paid a civil penalty of between \$200 and \$100,000, based on the size and number of facilities covered by their Agreement. They also were responsible for contributing to a fund to cover the cost of NAEMS.
- As part of the Agreement, EPA agreed not to sue participating AFOs for certain past and ongoing violations of the CAA, CERCLA, and EPCRA during NAEMS, provided that the AFOs comply with the Agreement's conditions.
- Once EPA publishes final emission models for an AFO's animal sector, that AFO must apply the final models to determine what actions, if any, it must take to comply with any applicable CAA requirements.

Agreement Compliance Requirements

- If the emission models demonstrate that a source does not trigger any CAA permitting requirements, the source must certify this outcome to the EPA in writing within **60** days after EPA publishes the emission models applicable to the emission units at that source or facility.
- If the emission models demonstrate that a source triggers CAA permitting requirements, the source must submit all permit applications required by the permitting authority for the source within **120** days.
 - Agreement participants should consult the Agreement for additional specifics related to permitting requirements and control technologies.
 - Farms installing waste-to-energy systems will have an additional **180** days to submit permit applications.
- The annual emissions from a source shall be determined based on current operating methods and on the maximum number of animals housed at the source at any time over the **24** months prior to EPA's publication of the applicable emission models.

NAEMS Overview

- Two-year, industry-funded study resulting from the Agreement.
- Monitored 25 sites (e.g., barns and lagoons) for H_2S , NH_3 , PM and VOCs.
- Species: Swine, dairy, egg-layers and broilers; beef cattle and turkey are not included in this study.
- Sites selected based on representation of animal species and geographic location.



NAEMS Timeline

- **2007 – 2010:** NAEMS monitored farm emissions
- **2013:** First group of draft emission models reviewed by EPA's Science Advisory Board (SAB)
- **2014 – 2016:** Gathered data and conducted analyses per SAB recommendations
- **2017 – 2020:** Issued QAPP for data analysis and revised methodology to develop emission models
- **2020 – 2022:** Issue draft models on a rolling basis, by animal species

Model Development Overview

- Select parameters
 - Considered data quantity and potential ease of measurement for a producer
- Create test models for daily emissions
- Select daily emission model
- Evaluate model
- Develop annual emission estimates and estimates of uncertainty

Models Development: Phases of Swine Production

- Based on literature and data analysis, the different phases of swine production and manure management systems can contribute to differences in emission rates.
- EPA developed separate models for:
 - farrowing rooms
 - gestation barns with shallow pits
 - gestation barns with deep pits
 - grow-finish barns with shallow pits
 - grow-finish barns with deep pits
 - lagoons for breeding-gestation farms
 - lagoons for grow-finish farms
 - basins

Models Development: Daily Model Form

$$Y_p(\ln\{\text{pollutant}\}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Where:

Y_p is the log transformed emissions

β_0 is a constant

X_i is a predictive parameter (e.g., ambient temperature, wind speed)

β_i is the coefficient for parameter X_i

Model Development: Annual Emissions Estimate

- Estimate annual emissions by summing the daily emissions over the course of a year
- Develop uncertainty estimates for each annual model
- Develop total farm uncertainty by combining the uncertainty for each component of the farm (e.g., barns and lagoons)

Improvements from Previous Emission Models

- Used linear regressions, which prevents inconsistent results for extreme values
- Adjusted parameter selection to include more robust literature review
- Expanded the criteria to evaluate model performance
 - Added residual plots (i.e., model fit plots) and calculated model performance statistics.
- Refined evaluation approach to the “minus-one-house” technique, which is a more refined statistical approach with temporally correlated data

Uses of the Emission Models

- These models *estimate* emissions.
- Air Compliance Agreement participants ***must*** use the final models to determine whether their emissions trigger certain Clean Air Act permitting requirements.
- Other swine AFOs ***may*** use the final models to determine whether their emissions trigger certain Clean Air Act permitting requirements.
- The final models may also be useful for general estimates of emissions from swine operations across the US or comparisons between operations in different regions.
- The current *draft* models should ***not*** be used for these purposes until they are finalized.
- When the models are final, EPA will provide a tool that will apply the models to estimate emissions for farms.

Limitations of the Emission Models

- The models do not estimate emissions from all pollutants, or all emission sources found on swine operations.
- The models do not incorporate all the site-specific management factors that can affect emissions.
- The models cannot be used to quantify impacts of best management practices on emissions.

Schedule

Date	Milestone	Status
September 2019	Call for information for additional VOC data	Complete
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February 2022	Draft models for volatile organic compound emissions from swine, poultry and dairy farms	
TBD	Stakeholder review period	
TBD	Finalization of all AFO emission models	

- Schedule is available on the project website: www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status

Contact Information

www.epa.gov/afos-air/national-air-emissions-monitoring-study

NAEMS@epa.gov

This report is an external draft for review purposes only and does not constitute U.S. Environmental Protection Agency policy.



Appendix: Swine Emission Models

Emission Models: Farrowing Rooms

Manure Management System	Pollutant	Intercept	Cycle day	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
All	H ₂ S	2.142329	0.129797		0.061406	
All	NH ₃	0.68875	0.001961	0.000581	0.008405	
All	PM ₁₀	2.489915	0.055625		0.106263	-0.003436
All	PM _{2.5}	-1.21456	0.075902		0.256357	
All	TSP	2.858928	0.070551		0.147305	-0.004908

Emission Models: Breeding and Gestation Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified/No Pit	H ₂ S	2.077258	0.003547	0.019862	
	NH ₃	0.154785	0.006855	0.009122	
Deep	H ₂ S	3.171852	0.003844	0.019592	
	NH ₃	0.834777	0.011778	0.007899	
Shallow	H ₂ S	2.130472	0.003844	0.019592	
	NH ₃	0.30747	0.011778	0.007899	
All	PM ₁₀	5.186761		0.005472	-0.007661
	PM _{2.5}	4.88715		0.0007	
	TSP	5.533966		0.006601	-0.008

Emission Models: Grow-Finish Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified (No Pit)	H ₂ S	4.081979	-0.006592	0.017163	
	NH ₃	1.236262	0.008953	0.008939	
Deep	H ₂ S	4.991579	-0.005539	0.013317	
	NH ₃	1.342386	0.009077	0.008545	
Shallow	H ₂ S	4.190492	-0.005539	0.013317	
	NH ₃	1.142239	0.009077	0.008545	
All	PM ₁₀	5.503943		0.010447	-0.009403
	PM _{2.5}	2.49543		0.01095	-0.002279
	TSP	6.26614		0.011813	-0.008831

Emission Models: Lagoons and Basins

Source	Operation Type	Pollutant	Intercept	Ambient Temperature (°C)	Wind Speed (ms ⁻¹)
Lagoon	Breeding - Gestation	H ₂ S	4.435746		0.236141
Lagoon	Breeding - Gestation	NH ₃	0.582053	0.055673	0.091428
Lagoon	Grow-Finish	H ₂ S	3.694758		0.279011
Lagoon	Grow-Finish	NH ₃	-0.680078	0.085372	0.131932
Basin	Grow-Finish	H ₂ S	0.4689	0.027	
Basin	Grow-Finish	NH ₃	1.5049	0.01171	

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We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): (b) (6) / Conference ID: (b) (6)

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From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 1/25/2021 12:51:19 PM
To: Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
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Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/24/2020 12:58:50 PM
To: Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: schedule discussion
Attachments: NAMES_Schedule_Gantt_Version3.2.xlsx

-----Original Appointment-----

From: Do, Bebhinn
Sent: Friday, July 24, 2020 8:25 AM
To: Do, Bebhinn; Costa, Allison; Banner, Shannon
Subject: schedule discussion
When: Friday, July 24, 2020 8:30 AM-9:30 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

We'll discuss the schedule in a second. A couple more edits are attached.

Join Microsoft Teams Meeting

(b) (6) United States, Raleigh (Toll)

Conference ID: (b) (6)

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Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 11/16/2020 3:38:14 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: Presentation for the call @ 3:30 today
Attachments: NAEMS_Swine Draft Models_11.16.2020.pptx

Please disregard the previous version. This one has the correct timeline.

BD

From: Do, Bebhinn
Sent: Monday, November 16, 2020 9:37 AM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: Presentation for the call @ 3:30 today

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Let me know if I should add a pdf copy to the meeting invite.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Draft Emissions Estimating Methodologies for Swine Animal Feeding Operations

November 2020

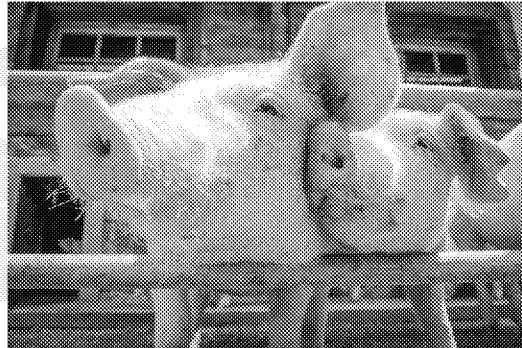


Introduction

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- These draft swine emission models utilize data collected as part of the National Air Emissions Monitoring Study (NAEMS).
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- EPA has developed approximately 30 emission models for the various emission source and pollutant combinations at swine operations.

Outline

- Model Development Overview
- Improvements from 2012 Draft Emission Models
- Uses of the Emission Models
- Limitations of the Emission Models
- Schedule



Model Development Overview

- Select parameters
 - Conduct literature review to identify factors that influence emissions
 - Conduct exploratory data analysis to see trends when comparing individual parameters to monitored emissions
 - Select parameters with strong trends in the literature and/or the exploratory data analysis, while also considering data quantity and potential ease of measurement for a producer
- Create test models for daily emissions with combinations of identified parameters
- Select daily emission model based subjective evaluation of accuracy and ease of use
- Evaluate model by “jackknife” technique where one barn was removed from the dataset
- Develop annual emission estimates and estimates of uncertainty

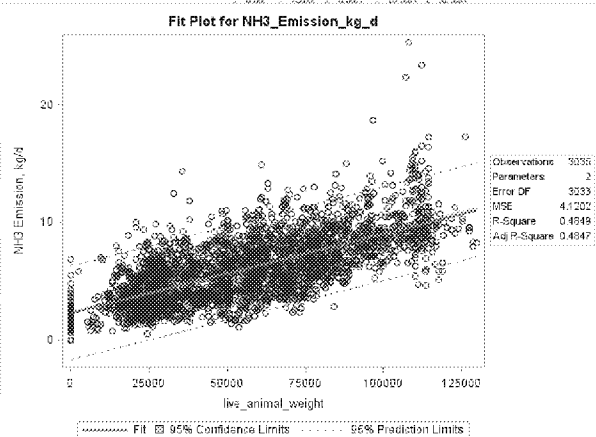
Selection of Parameters: Available Parameters

Measured Parameter	
Animals	Inventory
	Weight
Barn conditions	Exhaust temperature
	Exhaust relative humidity
	Static pressure
	Ventilation rate
Lagoon conditions	Temperature (lagoon liquid)
	pH
	Reduction/oxidation potential
Meteorological conditions	Ambient temperature
	Ambient relative humidity
	Barometric pressure
	Surface wetness
	Solar radiation
	Wind speed
	Wind direction

- Also considered cycle day
 - Number of days the animals have been in the barn
 - Day 1 = day the animals were placed in the barn
 - Provides an indication of the age of the manure and management activities (e.g., feed changes)

Selection of Parameters:

- Literature Review
- Exploratory Data Analysis
 - Plots to identify trends
 - Regressions to assess strength of the relationships



Models Development: Phases of Swine Production

- Based on literature and data analysis, the different phases of swine production and manure management systems can contribute to differences in emission rates.
- EPA developed separate models for:
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Model Development: Statistical Approach

- Linear model
- Performed a natural log transformation on the average daily emissions before fitting a model
- Evaluate the models based on their performance (e.g., error, bias) and their potential ease of use (i.e., how easily could a farmer potentially obtain measurements of the predictor values)

Models Development: Form

$$Y_p(\ln\{\text{pollutant}\}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Where:

Y_p is ...

β_0 is a constant

X_i is a predictive parameter (e.g., ambient temperature, wind speed)

β_i is the coefficient for parameter X_i

Model Development: Evaluation

- “Jackknife”
 - Examines the cumulative effect of multiple “minus-one-house” runs on coefficient estimates
 - Models predict emissions for the subset sample left out
 - The predicted emissions are then evaluated using the observed (measured) data for the subset sample left out

Model Development: Annual Emissions Estimate

- Annual emissions are estimated by summing the daily emissions over the course of a year
- Also developed an estimate of uncertainty for the model
 - Developed based on variation of a predictor variable
 - Ran multiple simulations for each day for each value of the predictor to estimate the residual
 - Percent uncertainty plotted versus annual emission and fitted with a model of uncertainty for the emission estimate
- Developed a method to combine the uncertainty for each component of the farm (e.g., barns and lagoons) for a farm total uncertainty

Improvements from 2012 Draft Emission Models

- Switched to linear regressions, which prevents inconsistent results for extreme values
- Adjusted parameter selection to include more robust literature review
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- The models do not incorporate all the site-specific management factors that can affect emissions.
- The models cannot be used to quantify impacts of best management practices on emissions.
- The model estimates uncontrolled emissions and the typical management at the time of data collection.

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TBD	Stakeholder review period	
TBD	Finalization of all AFO emission models	

- Schedule is available on the project website: <https://www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status>

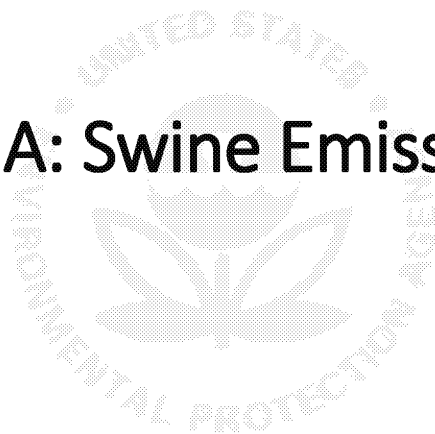
Contact Information

<https://www.epa.gov/afos-air/national-air-emissions-monitoring-study#main-content>

NAEMS@epa.gov

This report is an external draft for review purposes only and does not constitute U.S. Environmental Protection Agency policy.

Appendix A: Swine Emission Models



Emission Models: Lagoons and Basins

Source	Operation Type	Pollutant	Intercept	Ambient Temperature (°C)	Wind Speed (ms ⁻¹)
Lagoon	Breeding - Gestation	H2S	4.435746		0.236141
Lagoon	Breeding - Gestation	NH3	0.582053	0.055673	0.091428
Lagoon	Grow-Finish	H2S	3.694758		0.279011
Lagoon	Grow-Finish	NH3	-0.680078	0.085372	0.131932
Basin	Grow-Finish	H2S	0.4689	0.027	
Basin	Grow-Finish	NH3	1.5049	0.01171	

Emission Models: Farrowing Rooms

Manure Management System	Pollutant	Intercept	Cycle day	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
All	H2S	2.142329	0.129797		0.061406	
All	NH3	0.68875	0.001961	0.000581	0.008405	
All	PM10	2.489915	0.055625		0.106263	-0.003436
All	PM25	-1.21456	0.075902		0.256357	
All	TSP	2.858928	0.070551		0.147305	-0.004908

Emission Models: Breeding and Gestation Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified/No Pit	H2S	2.077258	0.003547	0.019862	
	NH3	0.154785	0.006855	0.009122	
Deep	H2S	3.171852	0.003844	0.019592	
	NH3	0.834777	0.011778	0.007899	
Shallow	H2S	2.130472	0.003844	0.019592	
	NH3	0.30747	0.011778	0.007899	
All	PM10	5.186761		0.005472	-0.007661
	PM2.5	4.88715		0.0007	
	TSP	5.533966		0.006601	-0.008

Emission Models: Grow-Finish Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified (No Pit)	H2S	4.081979	-0.006592	0.017163	
	NH3	1.236262	0.008953	0.008939	
Deep	H2S	4.991579	-0.005539	0.013317	
	NH3	1.342386	0.009077	0.008545	
Shallow	H2S	4.190492	-0.005539	0.013317	
	NH3	1.142239	0.009077	0.008545	
All	PM10	5.503943		0.010447	-0.009403
	PM25	2.49543		0.01095	-0.002279
	TSP	6.26614		0.011813	-0.008831

Appendix B: Consent Agreement Requirements

Consent Agreement Requirements

- **Paragraph 28(B):** If the emissions estimating methodologies demonstrate that a source does not trigger any Clean Air Act permitting requirements, the source must certify this outcome to the EPA in writing within 60 days after the EPA publishes the emission estimating methodologies applicable to the emission units at that source or facility.
- **Paragraph 28(C)(i):** If the emissions estimating methodologies demonstrate that a source triggers Clean Air Act permitting requirements, the source must submit all permit applications required by the permitting authority for the source within 120 days.
 - Agreement participants should consult the Agreement for additional specifics related to permitting requirements and control technologies.
 - **Paragraph 28(C)(d):** Farms installing waste-to-energy systems will have an additional 180 days to submit permit applications.
- **Paragraph 28(C)(i)(b):** The annual emissions from a source shall be determined based on current operating methods and on the maximum number of animals housed at the source at any time over the 24 months prior to EPA's publication of the applicable emissions-estimating methodologies.

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/21/2020 2:41:11 PM
To: Banner, Shannon [banner.shannon@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: NAEMS Schedule
Attachments: NAEMS_TaskList.xlsx

Ex. 5 Deliberative Process (DP)

From: Banner, Shannon <banner.shannon@epa.gov>
Sent: Monday, July 20, 2020 5:09 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: NAEMS Schedule

Ex. 5 Deliberative Process (DP)

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Monday, July 20, 2020 4:26 PM
To: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Cc: Banner, Shannon <banner.shannon@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: NAEMS Schedule

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

From: Costa, Allison <Costa.Allison@epa.gov>

Sent: Monday, July 20, 2020 2:41 PM

To: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>

Cc: Banner, Shannon <banner.shannon@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>

Subject: NAEMS Schedule

Ex. 5 Deliberative Process (DP)

Allison Costa

U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS

109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711

Phone: 919.541.1322 | email: Costa.Allison@epa.gov

*** Current Hours: 6 am – 3 pm ***

From: Rumsey, Ian <rumsey.ian@epa.gov>

Sent: Friday, June 26, 2020 12:34 PM

To: Costa, Allison <Costa.Allison@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>

Cc: Walker, JohnT <Walker.Johnt@epa.gov>; Dietrich, Yijia <Dietrich.Yijia@epa.gov>

Subject: RE: Next Steps

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Ian C. Rumsey, Ph.D.
Physical Scientist
Natural Systems Characterization Branch
U.S. Environmental Protection Agency
Office of Research & Development
Atmospheric and Environmental Systems Modeling Division
109 T.W. Alexander Drive (E305-02)
Research Triangle Park, NC 27711
Phone: (919) 541-0734
Fax: (919) 541-7885

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Wednesday, June 24, 2020 9:11 AM
To: Rumsey, Ian <rumsey.ian@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>
Subject: Next Steps

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
* Current Hours: 6:30 am – 3 pm *

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/21/2020 1:43:04 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]; Rumsey, Ian [rumsey.ian@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Croghan, Carry [Croghan.Carry@epa.gov]; Crowley, Kate [crowley.kate@epa.gov]; Hassett-Sipple, Beth [Hassett-Sipple.Beth@epa.gov]; Nash, Maliha [Nash.Maliha@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Thompson, Rhonda [Thompson.Rhonda@epa.gov]; Walker, JohnT [Walker.Johnt@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Yelverton, Tiffany [Yelverton.Tiffany@epa.gov]; Lowe, Theresa [Lowe.Theresa@epa.gov]
Subject: RE: NAEMS monthly coordinating meeting
Attachments: CoordinatingCommittee Meeting_06.30.2020.docx

Notes from our last meeting are attached.

This coming meeting agenda includes:

- Summary of comment received
- Discussion of the schedule for the remaining animal types.
- Poultry update from Ian

Talk to you next Tuesday (7/28).

Bebhinn

-----Original Appointment-----

From: Do, Bebhinn
Sent: Wednesday, June 24, 2020 9:26 AM
To: Do, Bebhinn; Dunkins, Robin; Rumsey, Ian; Sullivan, Tim; Yelverton, William
Cc: Costa, Allison; Croghan, Carry; Crowley, Kate; Hassett-Sipple, Beth; Nash, Maliha; Schrock, Bill; Thompson, Rhonda; Walker, JohnT; Dietrich, Yijia; Banner, Shannon; Yelverton, Tiffany; Lowe, Theresa
Subject: NAEMS monthly coordinating meeting
When: Tuesday, July 28, 2020 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Agenda will be updated prior to the meeting.

Join Microsoft Teams Meeting

(b) (6) United States, Raleigh (Toll)

Conference ID: (b) (6)

[Local numbers](#) | [Reset PIN](#) | [Learn more about Teams](#) | [Meeting options](#)

By participating in EPA hosted virtual meetings and events, you are consenting to abide by the agency's terms of use. In addition, you acknowledge that content you post may be collected and used in support of FOIA and eDiscovery activities.

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/16/2020 6:04:23 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: RE: NAEMS updates
Attachments: NAMES_PoultrySchedule_Gantt_Version2.1_NoBroilerMove_07.16.2020.xlsx;
NAMES_PoultrySchedule_Gantt_Version2_07.16.2020.xlsx

Two versions of the ORD proposed schedule are attached.

Ex. 5 Attorney Work Product (AWP)

We can discuss on the call. Let me know if you want me to add a team link to share screens.

Bebhinn

-----Original Appointment-----

From: Dunkins, Robin <Dunkins.Robin@epa.gov>

Sent: Monday, December 2, 2019 9:51 AM

To: Banner, Shannon; Schrock, Bill; Costa, Allison; Dunkins, Robin; Do, Bebhinn; Banner, Shannon; Schrock, Bill; Costa, Allison

Subject: NAEMS updates

When: Thursday, July 16, 2020 3:00 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: RTP-OAQPS-E141B/RTP-OAQPS-BLDG-E

NRG team updates. I've scheduled these meetings for every 2 weeks. We can cancel meeting when there are no updates.

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 5/29/2020 8:16:52 PM
To: Koerber, Mike [Koerber.Mike@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; South, Peter [South.Peter@epa.gov]; Hagan, Nicole [Hagan.Nicole@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Gmyr, Joanna [Gmyr.Joanna@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]
Subject: Re: 6/1 NAEMS status update pager
Attachments: NAEMS Status Update_OAQPS_06.01.2020.docx

Hi Mike,

The NAEMS schedule is included in the attached version.

Thanks,
Kate

From: Koerber, Mike <Koerber.Mike@epa.gov>
Sent: Friday, May 29, 2020 3:34 PM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Gmyr, Joanna <Gmyr.Joanna@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>
Subject: RE: 6/1 NAEMS status update pager

Thank you, Kate. Can you also include the overall NAEMS schedule (by animal sector) in the paper?

Mike

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Friday, May 29, 2020 2:11 PM
To: Hagan, Nicole <Hagan.Nicole@epa.gov>; McKinney, Voronina <mckinney.voronina@epa.gov>; Koerber, Mike <Koerber.Mike@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Lassiter, Penny <Lassiter.Penny@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>; South, Peter <South.Peter@epa.gov>; Joseph, Wanda <joseph.wanda@epa.gov>; Eck, Janet <Eck.Janet@epa.gov>; McLamb, Marguerite <McLamb.Marguerite@epa.gov>; Gmyr, Joanna <Gmyr.Joanna@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>
Subject: 6/1 NAEMS status update pager

Attached is the pager for Monday's NAEMS status update.

Let me know if you have any questions.

Thanks,
Kate

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 5/29/2020 5:44:48 PM
To: Cozzie, David [Cozzie.David@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Re: 6/1 NAEMS status update, for review
Attachments: NAEMS Status Update_06.01.2020_dc_BD.docx

Hi David,

Thanks for your edits. Bebhinn and Robin put together the attached revised version. If this addresses your comments adequately I will send a clean version forward.

Thanks,
Kate

From: Cozzie, David <Cozzie.David@epa.gov>
Sent: Friday, May 29, 2020 12:55 PM
To: Crowley, Kate <crowley.kate@epa.gov>; Joseph, Wanda <joseph.wanda@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: RE: 6/1 NAEMS status update, for review

My edits and comments.

David A. Cozzie
Deputy Director
Sector Policies and Programs Division
109 T.W. Alexander Dr.
RTP, NC 27711
(919) 541-5356

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Friday, May 29, 2020 11:55 AM
To: Cozzie, David <Cozzie.David@epa.gov>; Joseph, Wanda <joseph.wanda@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: 6/1 NAEMS status update, for review

Hi David,

Attached for your review is the pager for Monday's status update on NAEMS with Peter. Please provide any edits by COB today.

Let us know if you have any questions.

Thanks,
Kate

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 5/29/2020 3:25:31 PM
To: Do, Bebhinn [do.bebhinn@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Re: Brief for Peter June 1 meeting
Attachments: NAEMS Status Update_06.01.2020.docx

Hi Bebhinn,

Just a few suggested edits, including combining the documents. I know the turnaround time on this is tight, so let me know if this version looks OK to send to David for his review.

Thanks,
Kate

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Friday, May 29, 2020 10:07 AM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: Brief for Peter June 1 meeting

Kate,

Robin has reviewed the attached brief for Peter. Please feel free to make edits as necessary and please let us know if you have any questions.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 5/29/2020 2:07:41 PM
To: Crowley, Kate [crowley.kate@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Brief for Peter June 1 meeting
Attachments: NAEMS Status Update_5.29.2020_V2.docx; ImpactsSummaryTable_05.29.2020_V2.docx

Kate,

Robin has reviewed the attached brief for Peter. Please feel free to make edits as necessary and please let us know if you have any questions.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 9/23/2020 7:35:38 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Slides for 9/29 R7 talk
Attachments: NAEMS_Swine Draft Models_R7_2020.09.23.pptx

Robin,

The slide for the talk on 9/29 with R7 is attached.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Tim has already commented and I've incorporated his edits. Just wanted to run it by you before sending it to Kate.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 9/23/2020 5:29:48 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: Agenda items for call with enviros
Attachments: NAMES_Update_TalkingPoints_2020.10.01_wcs_bd.docx

Robin,

We've pulled together some talking points for Penny to announce the draft swine EEMs to the enviros (note below).

Ex. 5 Deliberative Process (DP)

Thanks,
Bebhinn

From: Lavoie, Tegan <lavoie.tegan@epa.gov>
Sent: Monday, September 21, 2020 8:57 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: Agenda items for call with enviros

Good morning Bebhinn,

Penny will present this topic at the Oct 1 call with the Enviros. I'm not sure the specific procedure within SPPD, but you should coordinate internally to provide Penny with talking points on this topic.

Thank you,
Tegan

=====

Tegan N. Lavoie, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711
Office: (919) 541-5110 | Cell: (919) 972-1972
Email: lavoie.tegan@epa.gov

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, September 17, 2020 2:56 PM
To: Lavoie, Tegan <lavoie.tegan@epa.gov>
Subject: RE: Agenda items for call with enviros

Thank you!

From: Lavoie, Tegan <lavoie.tegan@epa.gov>
Sent: Thursday, September 17, 2020 2:55 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: Agenda items for call with enviros

Of course! ☺

FYI, Mike responded that we will add this to the agenda for the next meeting, currently scheduled for October 1st at 12:00 PM. I will let you know early next week if we will need talking points and/or who will present.

Thanks,
Tegan

=====
Tegan N. Lavoie, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711
Office: (919) 541-5110 | Cell: (919) 972-1972
Email: lavoie.tegan@epa.gov

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, September 17, 2020 2:19 PM
To: Lavoie, Tegan <lavoie.tegan@epa.gov>
Subject: RE: Agenda items for call with enviros

Thank you so much for your help!

From: Lavoie, Tegan <lavoie.tegan@epa.gov>
Sent: Thursday, September 17, 2020 2:18 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: Agenda items for call with enviros

Ex. 5 Deliberative Process (DP)

=====
Tegan N. Lavoie, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711
Office: (919) 541-5110 | Cell: (919) 972-1972
Email: lavoie.tegan@epa.gov

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, September 17, 2020 1:02 PM
To: Lavoie, Tegan <lavoie.tegan@epa.gov>
Subject: Agenda items for call with enviros

Tegan,

Ex. 5 Deliberative Process (DP)

Let me know if we should direct this request to someone else.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 9/9/2020 12:55:51 PM
To: Do, Bebhinn [do.bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Mills, Kathy [Mills.Kathy@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: ASAP: Ag Talkers for Anne
Attachments: FRRCC Talkers_090920_kc.docx

Thanks Allison. I had just a few edits for readability. Nothing on formatting.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Kate

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Wednesday, September 9, 2020 7:52 AM
To: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Mills, Kathy <Mills.Kathy@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: ASAP: Ag Talkers for Anne

I think the bullets hit all the points and look good.

BD

From: Schrock, Bill <Schrock.Bill@epa.gov>
Sent: Wednesday, September 9, 2020 7:47 AM
To: Costa, Allison <Costa.Allison@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Mills, Kathy <Mills.Kathy@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: ASAP: Ag Talkers for Anne

I'm fine with these bullets.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Wednesday, September 09, 2020 7:14 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Mills, Kathy <Mills.Kathy@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: ASAP: Ag Talkers for Anne

Hi all,

We were asked to pull together some talkers for Anne o use at the Farm, Ranch, and Rural Communities FACA meeting tomorrow.

Ex. 5 Deliberative Process (DP)

Cheers,
Allison

Allison Costa

U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov

*** Current Hours: 6:00 am – 2:30 pm ***

Message

From: Schrock, Bill [Schrock.Bill@epa.gov]
Sent: 8/18/2020 3:03:08 PM
To: Crowley, Kate [crowley.kate@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: NAEMS comms materials
Attachments: Comms Plan_NAEMS Swine Models_08.18.20.docx; Fact Sheet_NAEMS Swine Models_08.18.20.docx

I've gone through and accepted the PACs edits so these should be good to go.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Tuesday, August 18, 2020 9:01 AM
To: Schrock, Bill <Schrock.Bill@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: NAEMS comms materials

Hi all,

Attached are edits from Jenny on the comms materials—just a few small things.

Thanks,
Kate

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 8/18/2020 11:56:26 AM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: Presentation for NPPC meeting
Attachments: NAEMS_Swine Draft Models_08.18.2020.pptx

Ex. 5 Deliberative Process (DP)

Ex. 6 Personal Privacy (PP)

I'll let you know when I am back online.

Bebhinn

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Monday, August 17, 2020 11:26 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: RE: Presentation for NPPC meeting

I'm fine with the content draft presentation. I have just a few minor edits. Let's discuss tomorrow.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.robins@epa.gov

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Monday, August 17, 2020 12:35 PM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: Presentation for NPPC meeting

Robin the slides for the meeting with NPPC are attached, if you have time to review.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Let me know if you want more time to review.

Best regards,
Bebhinn

Ms. Bebhinn Do

U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group

109 T.W. Alexander Drive | Research Triangle Park, NC 27711

Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 8/17/2020 8:17:27 PM
To: Schrock, Bill [Schrock.Bill@epa.gov]
CC: Banner, Shannon [banner.shannon@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: schedule
Attachments: NAMES_Schedule_Gantt_Version3.3_contractor.xlsx

Ex. 5 Deliberative Process (DP)

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 8/13/2020 12:37:50 PM
To: Costa, Allison [Costa.Allison@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: Draft Web Update for Swine Rollout
Attachments: NAEMS webpage_swine update_kc.docx

Hi Allison—just a few minor suggested edits.

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Thursday, August 13, 2020 8:18 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: Draft Web Update for Swine Rollout

Hi all,

Attached is the clean draft update for the NAEMS webpages that need to be updated when we publish the report. Can someone give it a quick read-through ASAP and let me know if there are any typos that need to be corrected?

Ex. 5 Deliberative Process (DP)

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
* Current Hours: 5:30 am – 3:30 pm *

Message

From: Costa, Allison [Costa.Allison@epa.gov]
Sent: 8/12/2020 2:46:34 PM
To: Crowley, Kate [crowley.kate@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: Proposed web updates for Swine Report
Attachments: NAEMS webpage.docx

Attached are proposed changes for the NAEMS webpages. Please let me know if you have any edits or suggestions.

Ex. 5 Deliberative Process (DP)

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5:30 am – 3:30 pm ***

To: Cortelyou-Lee, Jan[Cortelyou-Lee.Jan@epa.gov]
Cc: Costa, Allison[Costa.Allison@epa.gov]; Schrock, Bill[Schrock.Bill@epa.gov]; Do, Bebhinn[do.bebhinn@epa.gov]; Dunkins, Robin[Dunkins.Robin@epa.gov]; Banner, Shannon[banner.shannon@epa.gov]
From: Crowley, Kate[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B0A407393C1942F3AECA106EE3DC755D-CROWLEY, KA]
Sent: Wed 8/12/2020 2:25:02 PM (UTC)
Subject: NAEMS Swine Models comms materials
Fact Sheet NAEMS Swine Models 08.12.20.docx
Comms Plan NAEMS Swine Models 08.12.20.docx

Hi Jan,

Attached are the fact sheet and comms plan for the NAEMS Swine Models. We're expecting roll-out next week (no signature, just post to web). Let us know if you have any edits or questions.

Thanks,
Kate

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

Message

From: Costa, Allison [Costa.Allison@epa.gov]
Sent: 8/12/2020 10:43:14 AM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]; Crowley, Kate [crowley.kate@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: NAEMS Fact Sheet and Rollout Plan
Attachments: Fact Sheet_swine models_081120_kc.docx; NAEMS Swine Rollout_08.11.20_ac.docx

Hi Robin and Kate,

Attached are the fact sheet and rollout plan for the release of the draft swine emission model report.

Robin – please review and let us know if these are cleared to send to PACS.

Ex. 5 Deliberative Process (DP)

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
* Current Hours: 5:30 am – 3:30 pm *

Message

From: Yelverton, William [Yelverton.William@epa.gov]
Sent: 8/6/2020 1:15:15 PM
To: Sullivan, Tim [Sullivan.Tim@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
CC: Crowley, Kate [crowley.kate@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Rumsey, Ian [rumsey.ian@epa.gov]; Nash, Maliha [Nash.Maliha@epa.gov]; Croghan, Carry [Croghan.Carry@epa.gov]; Lowe, Theresa [Lowe.Theresa@epa.gov]; Thompson, Rhonda [Thompson.Rhonda@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]; Walker, JohnT [Walker.Johnt@epa.gov]
Subject: RE: Fore Review: Draft Swine Roll-Out Materials
Attachments: NAEMS Swine Rollout_080520_v2_TJS_WY.docx; Fact Sheet_swine models_TJS_WY.docx

Attached are versions with just a few additional comments.

Thanks,
Will

From: Sullivan, Tim <Sullivan.Tim@epa.gov>
Sent: Wednesday, August 5, 2020 7:44 PM
To: Costa, Allison <Costa.Allison@epa.gov>
Cc: Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Yelverton, William <Yelverton.William@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Rumsey, Ian <rumsey.ian@epa.gov>; Nash, Maliha <Nash.Maliha@epa.gov>; Croghan, Carry <Croghan.Carry@epa.gov>; Lowe, Theresa <Lowe.Theresa@epa.gov>; Thompson, Rhonda <Thompson.Rhonda@epa.gov>; Dietrich, Yijia <Dietrich.Yijia@epa.gov>; Walker, JohnT <Walker.Johnt@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>
Subject: RE: Fore Review: Draft Swine Roll-Out Materials

Thanks, Allison—these look good.

My comments and suggested edits are attached.

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

Help eliminate environmental violations - report tips and complaints at:
<http://www.epa.gov/compliance/complaints/index.html>

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please advise the sender immediately by reply e-mail and delete this message and any attachments from your machine and all storage media whether in electronic or hard copy. Thank you.

From: Costa, Allison <Costa.Allison@epa.gov>

Sent: Wednesday, August 5, 2020 8:28 AM

To: Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Rumsey, Ian <rumsey.ian@epa.gov>; Nash, Maliha <Nash.Maliha@epa.gov>; Croghan, Carry <Croghan.Carry@epa.gov>; Lowe, Theresa <Lowe.Theresa@epa.gov>; Thompson, Rhonda <Thompson.Rhonda@epa.gov>; Dietrich, Yijia <Dietrich.Yijia@epa.gov>; Walker, JohnT <Walker.Johnt@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>

Cc: Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Yelverton, William <Yelverton.William@epa.gov>

Subject: Fore Review: Draft Swine Roll-Out Materials

Hi all,

Attached is the draft roll-out plan and fact sheet for the release of the swine models.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Please send any comments by COB this Friday. Let me know if you have any questions.

Cheers,
Allison

Allison Costa

U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov

*** Current Hours: 5:30 am – 3:30 pm ***

To: Costa, Allison[Costa.Allison@epa.gov]; Schrock, Bill[Schrock.Bill@epa.gov]; Crowley, Kate[crowley.kate@epa.gov]
Cc: Banner, Shannon[banner.shannon@epa.gov]
From: Do, Bebhinn[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: Wed 8/5/2020 12:25:52 PM (UTC)
Subject: RE: Draft Swine Roll-out Plan
NAEMS Swine Rollout_072720_ac BD.docx

I had a couple suggestions.

BD

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Wednesday, August 5, 2020 7:39 AM
To: Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Banner, Shannon <banner.shannon@epa.gov>
Subject: Draft Swine Roll-out Plan

Hi all,

Can you give this a review and provide any initial comments this morning before I send it to ORD/OECA? We can make edits after that, while they're reviewing it this week. However, if you can give it an initial once-over to make sure it's what we want to send to our partners for review, that would be great.

Thanks,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5:30 am – 3:30 pm ***

Message

From: Costa, Allison [Costa.Allison@epa.gov]
Sent: 7/31/2020 3:42:04 PM
To: Sullivan, Tim [Sullivan.Tim@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Rumsey, Ian [rumsey.ian@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: For Review: NAEMS Pager on USDA Comments
Attachments: NAEMS Status Update_08.XX.2020_KC2_AC.docx

Hi all,

As we discussed in our coordination meetings, Anne Austin (OAR AA) and Carrie Meadows (Ag Advisor to the Administrator) asked for an update on comments after USDA completed their review. **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP) Please review the attached draft and let us know if you have any questions or suggested edits. We'll also send around the final version if any of you want to send it up your management chains.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 6 am – 3 pm ***

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/24/2020 1:41:52 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: Suggested schedule improvements
Attachments: NAMES_Schedule_Gantt_Version3.1.xlsx

Robin,

I attached our draft version of the changes. There still some overlaps that need to be addressed, so dates still need some revisions

Ex. 5 Deliberative Process (DP)

Please let me know if you have questions.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Costa, Allison [Costa.Allison@epa.gov]
Sent: 6/22/2020 11:13:13 AM
To: Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: draft NAEMS pager for Meadows
Attachments: NAEMS Status Update_06.22.2020_draft.docx

Here's a slightly updated version of the pager we used for Anne Idsal two weeks ago.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 6:30 am – 3 pm ***

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 8/21/2020 5:20:38 PM
To: Yelverton, William [Yelverton.William@epa.gov]; Rumsey, Ian [rumsey.ian@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]; Walker, JohnT [Walker.Johnt@epa.gov]; Nash, Maliha [Nash.Maliha@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: RE: Meeting with NPPC - EEMS for swine
Attachments: NAEMS_Swine Draft Models_08.24.2020.pptx

Just wanted to give you an advance copy of the presentation for Monday. It's a pared down version of the overview talk I gave at the USDA meeting and provides a broad overview of the process.

I don't anticipate getting into details at this meeting. After they've had a chance to digest the document, we'll probably schedule a follow up meeting later where we can talk details.

Let me know if you have any questions.

Talk to you Monday.
BD

Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 1/6/2021 6:48:27 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]
Subject: AAPCA Emissions Inventory Committee Meeting
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx
Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Busy

Required Attendees: Do, Bebhinn; Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison; Dietrich, Yijia

We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): (b) (6) Conference (b) (6)
[Find a local number](#) | [Reset PIN](#) | [Learn More](#) | [Meeting options](#)

Putting a hold on everyone's calendar for the Association of Air Pollution Control Agencies (AAPCA, <https://cleanairact.org/>) Emission Inventory Committee call on January 28 at 3PM Eastern.

This will be an opportunity to present an update on the NAEMS study to their member states. The presentation will be the same as the R7/NACAA slide deck (attached).

I will update with the specific call in information as soon as it is received.

Please let me know if you would like any additional staff added to the invite.

Bebhinn

919 541-0573 | do.bebhinn@epa.gov

Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/24/2020 12:25:05 PM
To: Do, Bebhinn [do.bebhinn@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]

Subject: schedule discussion
Attachments: NAMES_Schedule_Gantt_Version3.1.xlsx
Location: Microsoft Teams Meeting

Start: 7/24/2020 12:30:00 PM
End: 7/24/2020 1:30:00 PM
Show Time As: Tentative

Required Attendees: Costa, Allison; Banner, Shannon

We'll discuss the schedule in a second. A couple more edits are attached.

Join Microsoft Teams Meeting

Ex. 6 Personal Privacy (PP) nited States, Raleigh (Toll)

Conference ID: **Ex. 6 Personal Privacy (PP)**

[Local numbers](#) | [Reset PIN](#) | [Learn more about Teams](#) | [Meeting options](#)

By participating in EPA hosted virtual meetings and events, you are consenting to abide by the agency's terms of use. In addition, you acknowledge that content you post may be collected and used in support of FOIA and eDiscovery activities.

Message

From: Sullivan, Tim [Sullivan.Tim@epa.gov]
Sent: 8/21/2020 6:34:37 PM
To: Kelley, Rosemarie [Kelley.Rosemarie@epa.gov]; Koslow, Karin [Koslow.Karin@epa.gov]; Belser, Evan [Belser.Evan@epa.gov]
CC: Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: RE: National Air Emissions Monitoring Study Update

Rosemarie, Karin, and Evan:

The Draft Swine Air Emission Models for Animal Feeding Operations have been posted on the agency's website. (For your reference, here is the main National Air Emissions Monitoring Study webpage.) Please let me know if you want an update note to send to Susan.

Thanks, and have a nice weekend.

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

Help eliminate environmental violations - report tips and complaints at:
<http://www.epa.gov/compliance/complaints/index.html>

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From: Kelley, Rosemarie <Kelley.Rosemarie@epa.gov>
Sent: Tuesday, August 11, 2020 5:03 PM
To: Bodine, Susan <bodine.susan@epa.gov>
Cc: Starfield, Lawrence <Starfield.Lawrence@epa.gov>; Irving, John <Irving.John@epa.gov>; Koslow, Karin <Koslow.Karin@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>
Subject: National Air Emissions Monitoring Study Update

Susan--

We want to make sure you are aware that OAR is preparing to publicly post the draft emission estimating methodologies for swine Animal Feeding Operations in the next week or two. These draft methodologies are the first set that will be published following the Science Advisory Board's 2013 criticism of the initial set of draft methodologies and the 2017 OIG Report that focused on the delayed development of the methodologies. In anticipation of posting these draft methodologies, OAR staff prepared the attached update for Anne Austin.

We are providing this update for your awareness; there are no OECA action items at this time. The posting of the draft methodologies could lead to media inquiries and renewed attention for this topic. Please let us know if you have any questions.

Rosemarie

Message

From: Kelley, Rosemarie [Kelley.Rosemarie@epa.gov]
Sent: 8/11/2020 11:02:54 PM
To: Bodine, Susan [bodine.susan@epa.gov]
CC: Starfield, Lawrence [Starfield.Lawrence@epa.gov]; Irving, John [Irving.John@epa.gov]; Koslow, Karin [Koslow.Karin@epa.gov]; Belser, Evan [Belser.Evan@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: National Air Emissions Monitoring Study Update
Attachments: NAEMS Status Update_08.07.2020.docx

Susan--

We want to make sure you are aware that OAR is preparing to publicly post the draft emission estimating methodologies for swine Animal Feeding Operations in the next week or two. These draft methodologies are the first set that will be published following the Science Advisory Board's 2013 criticism of the initial set of draft methodologies and the 2017 OIG Report that focused on the delayed development of the methodologies. In anticipation of posting these draft methodologies, OAR staff prepared the attached update for Anne Austin.

We are providing this update for your awareness; there are no OECA action items at this time. The posting of the draft methodologies could lead to media inquiries and renewed attention for this topic. Please let us know if you have any questions.

Rosemarie

Message

From: Koerber, Mike [Koerber.Mike@epa.gov]
Sent: 6/5/2020 2:38:02 PM
To: OAR Briefings [OAR_Briefings@epa.gov]
CC: Hagan, Nicole [Hagan.Nicole@epa.gov]
Subject: Briefing Materials: National Air Emissions Monitoring Study (NAEMS) Status Update - Monday, June 8
Attachments: NAEMS Status Update_OAR_06.08.2020.docx

Attached please materials for the following meeting:

June 8, 1:00-1:45 pm National Air Emissions Monitoring Study (NAEMS) Status Update

Please let me know if you have any questions.

Mike

Organizer: Idsal, Anne : idsal.anne@epa.gov
Subject: Check in on OIG's SAFE part 2 audit
Location: Microsoft Teams Meeting
Start Time: 2020-09-23T14:30:00-04:00
End Time: 2020-09-23T15:00:00-04:00
Attendees: Dunham, Sarah : Dunham.Sarah@epa.gov, Hengst, Benjamin : Hengst.Benjamin@epa.gov, Burch, Julia : Burch.Julia@epa.gov, Charmley, William : charmley.william@epa.gov, Vincent, Marc : Vincent.Marc@epa.gov, Marusiak, Eleanor : Marusiak.Eleanor@epa.gov, Tardif, Abigale (Abbie) : Tardif.Abigale@epa.gov, Dominguez, Alexander : dominguez.alexander@epa.gov

Join Microsoft Teams Meeting

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 United States, Washington DC (Toll)

Conference ID:

Ex. 6 Personal Privacy (PP)

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By participating in EPA hosted virtual meetings and events, you are consenting to abide by the agency's terms of use. In addition, you acknowledge that content you post may be collected and used in support of FOIA and eDiscovery activities.

Organizer: Fotouhi, David : Fotouhi.David@epa.gov
Subject: OGC - OAR - OP Weekly Meeting
Location: Microsoft Teams Meeting
Start Time: 2020-09-24T17:00:00-04:00
End Time: 2020-09-24T18:00:00-04:00
Attendees: Idsal, Anne : idsal.anne@epa.gov, Dominguez, Alexander : dominguez.alexander@epa.gov, Harlow, David : harlow.david@epa.gov, Bolen, Brittany : bolen.brittany@epa.gov, Gustafson, Adam : Gustafson.Adam@epa.gov, Wheeler, Kevin : Wheeler.Kevin@epa.gov, Jones, Lindsey : jones.lindsey@epa.gov, Yarbrough, John (Daniel) : Yarbrough.Daniel@epa.gov, Cory, Preston : Cory.Preston@epa.gov, Raymond, Kelley : Raymond.Kelley@epa.gov, Moor, Karl : Moor.Karl@epa.gov, Landeene, Sarah, Landeene.Sarah@epa.gov, Tardif, Abigale (Abbie) : Tardif.Abigale@epa.gov

Apologies for the odd timing of this week’s meeting.

Fletcher

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[Ex. 6 Personal Privacy \(PP\)](#) United States, Washington DC (Toll)

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By participating in EPA hosted virtual meetings and events, you are consenting to abide by the agency's terms of use. In addition, you acknowledge that content you post may be collected and used in support of FOIA and eDiscovery activities.

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 5/29/2020 12:10:02 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: Current version of brief for Peter
Attachments: NAEMS Status Update_5.29.2020.docx; ImpactsSummaryTable_05.29.2020.docx

Yes. Corrected in the attached. **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

BD

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Thursday, May 28, 2020 6:42 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Cc: Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: RE: Current version of brief for Peter

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.rob@epa.gov

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, May 28, 2020 5:20 PM
To: Schrock, Bill <Schrock.Bill@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Cc: Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: RE: Current version of brief for Peter

Here's the latest version with both Bill and my comments, along with revisions suggested by Robin. I would appreciate if everyone could read over it to see if there are any additional comments or edits.

Ex. 5 Deliberative Process (DP)

Please let me know if you have any questions.

Bebhinn

From: Schrock, Bill <Schrock.Bill@epa.gov>
Sent: Thursday, May 28, 2020 4:32 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>

Cc: Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>

Subject: RE: Current version of brief for Peter

Attached are my comments. Sorry they were on the previous version but I didn't have too many.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Do, Bebhinn <do.bebhinn@epa.gov>

Sent: Thursday, May 28, 2020 2:19 PM

To: Dunkins, Robin <Dunkins.Robin@epa.gov>

Cc: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>

Subject: Current version of brief for Peter

Last version of the peter brief I have.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 5/28/2020 6:19:01 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Current version of brief for Peter
Attachments: NAEMS Status Update_5.28.20_BD2.docx

Last version of the peter brief I have.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Schrock, Bill [Schrock.Bill@epa.gov]
Sent: 8/11/2020 11:58:57 AM
To: Do, Bebhinn [do.bebhinn@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: RE: Comms Comments on NAEMS Materials
Attachments: NAEMS Swine Rollout_081020_kc_ac_wcs.docx; Fact Sheet_swine models_081020_kc_ac_bd-wcs.docx

Added my thoughts to Bebhinn's and also included a thought on the rollout plan.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Tuesday, August 11, 2020 7:48 AM
To: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Subject: RE: Comms Comments on NAEMS Materials

I added my responses as comments.

BD

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Tuesday, August 11, 2020 7:33 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Subject: Comms Comments on NAEMS Materials

Kate's edits on the rollout plan were straightforward, but there were several comments on the fact sheet. I've put some responses in comment bubbles, but wanted to get your opinions before sending it back to her.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5:30 am – 3:30 pm ***

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 8/10/2020 8:29:30 PM
To: Costa, Allison [Costa.Allison@epa.gov]
Subject: RE: For Review: Draft Swine Roll-Out Materials
Attachments: Fact Sheet_swine models_081020_kc.docx; NAEMS Swine Rollout_081020_kc.docx

Hi Allison,

Sorry I couldn't get these to you before you logged off for the day! Had some other projects that needed attention. My suggested edits are in the attached, and both documents have few comment bubbles where I could use some clarifications.

Thanks,
Kate

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Monday, August 10, 2020 12:51 PM
To: Crowley, Kate <crowley.kate@epa.gov>
Subject: RE: For Review: Draft Swine Roll-Out Materials

Hi Kate,

Here are the draft fact sheet and roll-out plan, incorporating the technical team's comments.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5:30 am – 3:30 pm ***

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Monday, August 10, 2020 7:40 AM
To: Costa, Allison <Costa.Allison@epa.gov>
Subject: FW: Fore Review: Draft Swine Roll-Out Materials

Hi Allison,

Let me know when you're ready for me to review the fact sheet and comms plan.

Thanks!
Kate

From: Yelverton, William <Yelverton.William@epa.gov>
Sent: Thursday, August 6, 2020 9:15 AM
To: Sullivan, Tim <Sullivan.Tim@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>
Cc: Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Rumsey, Ian <rumsey.ian@epa.gov>; Nash, Maliha <Nash.Maliha@epa.gov>; Croghan, Carry <Croghan.Carry@epa.gov>; Lowe, Theresa <Lowe.Theresa@epa.gov>; Thompson, Rhonda <Thompson.Rhonda@epa.gov>; Dietrich, Yijia <Dietrich.Yijia@epa.gov>; Walker, JohnT <Walker.Johnt@epa.gov>
Subject: RE: Fore Review: Draft Swine Roll-Out Materials

Attached are versions with just a few additional comments.

Thanks,
Will

From: Sullivan, Tim <Sullivan.Tim@epa.gov>
Sent: Wednesday, August 5, 2020 7:44 PM
To: Costa, Allison <Costa.Allison@epa.gov>
Cc: Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Yelverton, William <Yelverton.William@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Rumsey, Ian <rumsey.ian@epa.gov>; Nash, Maliha <Nash.Maliha@epa.gov>; Croghan, Carry <Croghan.Carry@epa.gov>; Lowe, Theresa <Lowe.Theresa@epa.gov>; Thompson, Rhonda <Thompson.Rhonda@epa.gov>; Dietrich, Yijia <Dietrich.Yijia@epa.gov>; Walker, JohnT <Walker.Johnt@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>
Subject: RE: Fore Review: Draft Swine Roll-Out Materials

Thanks, Allison—these look good.

My comments and suggested edits are attached.

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

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<http://www.epa.gov/compliance/complaints/index.html>

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From: Costa, Allison <Costa.Allison@epa.gov>

Sent: Wednesday, August 5, 2020 8:28 AM

To: Do, Bebhinn <do.bebhinn@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Rumsey, Ian <rumsey.ian@epa.gov>; Nash, Maliha <Nash.Maliha@epa.gov>; Croghan, Carry <Croghan.Carry@epa.gov>; Lowe, Theresa <Lowe.Theresa@epa.gov>; Thompson, Rhonda <Thompson.Rhonda@epa.gov>; Dietrich, Yijia <Dietrich.Yijia@epa.gov>; Walker, JohnT <Walker.Johnt@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>

Cc: Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Yelverton, William <Yelverton.William@epa.gov>

Subject: Fore Review: Draft Swine Roll-Out Materials

Hi all,

Attached is the draft roll-out plan and fact sheet for the release of the swine models. **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

Please send any comments by COB this Friday. Let me know if you have any questions.

Cheers,
Allison

Allison Costa

U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov

*** Current Hours: 5:30 am – 3:30 pm ***

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 8/7/2020 1:15:10 PM
To: Koerber, Mike [Koerber.Mike@epa.gov]; Lavoie, Tegan [lavoie.tegan@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; South, Peter [South.Peter@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]; Gmyr, Joanna [Gmyr.Joanna@epa.gov]; Eck, Janet [Eck.Janet@epa.gov]; McLamb, Marguerite [McLamb.Marguerite@epa.gov]; Perry, Nancy [Perry.Nancy@epa.gov]
Subject: NAEMS status update for OAR
Attachments: NAEMS Status Update_08.07.2020.docx

Attached is a pager for OAR on the upcoming publication of the draft emission models for swine farms. We previously met with Anne on 6/8 and agreed to send a summary pager following USDA's review of the report. Let us know if you have any questions.

Thanks,
Kate

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 8/7/2020 1:09:26 PM
To: Cozzie, David [Cozzie.David@epa.gov]; Perry, Nancy [Perry.Nancy@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]
Subject: RE: FOR REVIEW: NAEMS status update for OAR
Attachments: NAEMS Status Update_08.07.2020.docx

Thanks—Allison indicated she was fine with all suggested edits. Clean version with edits incorporated is attached here. I will send forward to OAQPS-IO.

Kate

From: Cozzie, David <Cozzie.David@epa.gov>
Sent: Friday, August 7, 2020 8:47 AM
To: Crowley, Kate <crowley.kate@epa.gov>; Perry, Nancy <Perry.Nancy@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: FOR REVIEW: NAEMS status update for OAR

My comments attached.

David A. Cozzie
Deputy Director
Sector Policies and Programs Division
109 T.W. Alexander Dr.
RTP, NC 27711
(919) 541-5356

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Friday, August 07, 2020 7:31 AM
To: Cozzie, David <Cozzie.David@epa.gov>; Perry, Nancy <Perry.Nancy@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: FOR REVIEW: NAEMS status update for OAR

Hi David,

Resending this pager—please review today if possible. We said in last week's 1-on-1 with Anne that we would be sending this pager up the week of 8/3.

Thanks!
Kate

From: Crowley, Kate
Sent: Wednesday, August 5, 2020 10:07 AM
To: South, Peter <South.Peter@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>; Perry, Nancy <Perry.Nancy@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <Do.Bebhinn@epa.gov>
Subject: FOR REVIEW: NAEMS status update for OAR

Please review the attached pager for OAR on the upcoming publication of the draft emission models for swine farms. We would like to send this pager forward before the end of the week. We previously met we Anne on 6/8 and agreed to send a summary pager following USDA's review of the report.

Let us know if you have any questions.

Thanks,
Kate

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 8/5/2020 1:45:44 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: RE: NAEMS: Comment Summary Pager
Attachments: NAEMS Status Update_08.05.2020_draft SPPD review.docx

Clean version attached. I added the bullet about meeting with NPPC under Next Steps. I will send this to SPPD-IO for review unless anyone else has additional edits.

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Wednesday, August 5, 2020 9:32 AM
To: Costa, Allison <Costa.Allison@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Subject: RE: NAEMS: Comment Summary Pager

Ex. 5 Deliberative Process (DP)

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.robins@epa.gov

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Tuesday, August 04, 2020 5:57 AM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Subject: NAEMS: Comment Summary Pager

Hi Robin,

I realized that I forgot to send this to you yesterday afternoon. Attached is the pager summarizing USDA comments on NAEMS for OAR and Carrie. It incorporates comments from ORD and OECA. Please review and let Kate know if it's ready to send up the chain.

As a reminder, we sent bullets up for the OAR 1:1 and send we would follow with a pager this week.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov

*** Current Hours: 5:30 am – 3:30 pm ***

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 7/31/2020 3:14:27 PM
To: Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]
Subject: RE: Briefing for NAEMS
Attachments: NAEMS Status Update_08.XX.2020_KC2_AC.docx

Quick review—just a few minor suggestions.

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Friday, July 31, 2020 10:54 AM
To: Schrock, Bill <Schrock.Bill@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: Briefing for NAEMS

Here are my revisions to the NAEMS update pager. Kate, if you have a chance to do another quick review, that would be great. Then we can send it to Robin and our ORD/OECA colleagues for a quick check before moving it up the chain.

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 6 am – 3 pm ***

From: Schrock, Bill <Schrock.Bill@epa.gov>
Sent: Wednesday, July 29, 2020 9:47 AM
To: Crowley, Kate <crowley.kate@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: Briefing and Roll-Out Materials for NAEMS

Attached is my first shot at the rollout plan and update.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Tuesday, July 28, 2020 1:06 PM
To: Costa, Allison <Costa.Allison@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: Briefing and Roll-Out Materials for NAEMS

Hi all,

PACS would like a fact sheet on the report, so please add that to the list of materials.

Thanks,
Kate

From: Crowley, Kate
Sent: Tuesday, July 28, 2020 7:36 AM
To: Costa, Allison <Costa.Allison@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <Do.Bebhinn@epa.gov>
Subject: RE: Briefing and Roll-Out Materials for NAEMS

Hi Allison,

Thanks for this summary, it will be super useful going forward. I can't think of anything right now that's not on this list. Please let me know as soon as any of the listed materials are ready for review and I'll start working through them. I'm checking with PACS now about their thoughts on additional comms materials.

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Tuesday, July 28, 2020 7:14 AM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>
Subject: Briefing and Roll-Out Materials for NAEMS

Ex. 5 Deliberative Process (DP)

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
* Current Hours: 6 am – 3 pm *

Message

From: Sullivan, Tim [Sullivan.Tim@epa.gov]
Sent: 7/17/2020 8:20:28 PM
To: Do, Bebhinn [do.bebhinn@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: Draft Swine Report Comments
Attachments: AFO Report to EPA_6.23.2020 clean_TJS Comments.docx

Hi, Bebhinn.

Thank you for your patience this week as I worked to wrap up my review—too many fire drills. My suggested edits and comments are attached for your consideration.

Ex. 5 Deliberative Process (DP)

Thanks, and have a nice weekend.

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

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<http://www.epa.gov/compliance/complaints/index.html>

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Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 4/29/2020 3:52:25 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: Re: USDA slides
Attachments: 01_NAEMS_BackGround_withnotes_KC.pptx; 02_NAEMS_ProcessOverview_WithNotes_KC.pptx

Hi all,

I had some formatting edits, mostly on the process overview presentation. Nothing substantive. Mostly just to clean up the flow charts, make the tables a little easier to read, capitalize titles, etc. I will go ahead and send these to Pete for his review. And thanks for the clarification Robin, I will try to summarize that to Pete in my message.

Kate

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Wednesday, April 29, 2020 9:30 AM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>
Subject: Re: USDA slides

Kate, clarification these are our slides not ORD slides. Our slides are not going thru ORD review. However we are coordinating with them on content.

Thanks

Robin Dunkins, Group Leader
Natural Resources Group
USEPA OAR/OAQPS
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.rob@epa.gov

On Apr 29, 2020, at 7:13 AM, Crowley, Kate <crowley.kate@epa.gov> wrote:

Hi Robin,

I will give a quick review this morning and then I can send to Pete to see if he has any comments

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Thanks,
Kate

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Tuesday, April 28, 2020 6:02 PM
To: Crowley, Kate <crowley.kate@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>
Subject: FW: USDA slides

We have an virtual interagency meeting with USDA on May 5 and 6 to initiate discussions on the draft EEMs for swine. Attached are our materials for the meeting.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Thanks,
robin

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.robin@epa.gov

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Tuesday, April 28, 2020 5:03 PM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: USDA slides

Latest slides

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 8/19/2020 1:53:56 PM
To: Do, Bebhinn [do.bebhinn@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: NAEMS stakeholder presentation
Attachments: NAEMS_Swine Draft Models_08.18.2020_kc.pptx

Hi Bebhinn,

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

If this look good to you I'll send it on for management review.

Thanks!
Kate

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Wednesday, August 19, 2020 9:33 AM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>
Subject: NAEMS stakeholder presentation

Kate,

Thanks for all your help with the roll out for the swine report. As part of the rollout, we are holding a stakeholder meeting with the National Pork Producers Council (NPPC) on Monday, August 24th. The slides for the talk are attached. Everyone in NRG and Tim Sullivan in OECA have already reviewed. I wanted pass them along to you for review and management review.

Please let me know if you need anything else.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 8/19/2020 1:32:36 PM
To: Crowley, Kate [crowley.kate@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: NAEMS stakeholder presentation
Attachments: NAEMS_Swine Draft Models_08.18.2020.pptx

Kate,

Thanks for all your help with the roll out for the swine report. As part of the rollout, we are holding a stakeholder meeting with the National Pork Producers Council (NPPC) on Monday, August 24th. The slides for the talk are attached. Everyone in NRG and Tim Sullivan in OECA have already reviewed. I wanted pass them along to you for review and management review.

Please let me know if you need anything else.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 6/5/2020 1:24:54 PM
To: Hagan, Nicole [Hagan.Nicole@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; South, Peter [South.Peter@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]; Eck, Janet [Eck.Janet@epa.gov]; McLamb, Marguerite [McLamb.Marguerite@epa.gov]; Gmyr, Joanna [Gmyr.Joanna@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]
Subject: 6/8 NAEMS pager
Attachments: NAEMS Status Update_OAR_06.08.2020.docx

Attached is the pager for Monday's NAEMS briefing with Anne. Please let me know if you have any questions.

Thanks,
Kate

Message

From: Cozzie, David [Cozzie.David@epa.gov]
Sent: 6/5/2020 1:04:44 PM
To: Crowley, Kate [crowley.kate@epa.gov]; South, Peter [South.Peter@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Gmyr, Joanna [Gmyr.Joanna@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]
Subject: RE: NAEMS pager, for review
Attachments: NAEMS Status Update_OAR_06.08.2020_clean_dc.docx

My comments attached.

David A. Cozzie
Deputy Director
Sector Policies and Programs Division
109 T.W. Alexander Dr.
RTP, NC 27711
(919) 541-5356

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Friday, June 05, 2020 7:09 AM
To: Cozzie, David <Cozzie.David@epa.gov>; South, Peter <South.Peter@epa.gov>; Joseph, Wanda <joseph.wanda@epa.gov>
Cc: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Gmyr, Joanna <Gmyr.Joanna@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>
Subject: NAEMS pager, for review

Attached is the pager for Monday's NAEMS briefing with Anne Idsal. If possible, please provide any edits by 2pm.

Thanks,
Kate

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 6/5/2020 11:08:55 AM
To: Cozzie, David [Cozzie.David@epa.gov]; South, Peter [South.Peter@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Gmyr, Joanna [Gmyr.Joanna@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]
Subject: NAEMS pager, for review
Attachments: NAEMS Status Update_OAR_06.08.2020_clean.docx

Attached is the pager for Monday's NAEMS briefing with Anne Idsal. If possible, please provide any edits by 2pm.

Thanks,
Kate

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 6/4/2020 9:20:50 PM
To: Crowley, Kate [crowley.kate@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: NAEMS pager for OAR
Attachments: NAEMS Status Update_OAR_06.08.2020_BD.docx

Sorry! I got hyper focused on something else.

I agree with your changes and suggested a clarification for your last question.

Thanks!
Bebhinn

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Thursday, June 4, 2020 4:52 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Cc: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: Re: NAEMS pager for OAR

Hi Bebhinn,

Thanks--I do have a few suggested edits and a couple of questions in the attached. Let me know what you think.

Kate

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, June 4, 2020 4:06 PM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: NAEMS pager for OAR

Kate,

The updated pager is attached.

Thank you for your patience.

Bebhinn

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Thursday, June 4, 2020 1:56 PM
To: Costa, Allison <Costa.Allison@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: Re: NAEMS pager for OAR

Thanks for the update! I'll keep an eye out.

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Thursday, June 4, 2020 1:46 PM
To: Crowley, Kate <crowley.kate@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: NAEMS pager for OAR

Hi Kate,

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP) We expect to have the pager to you later this afternoon.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5 am – 1 pm ***

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Thursday, June 04, 2020 7:24 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>;
Dunkins, Robin <Dunkins.Robin@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: NAEMS pager for OAR

Hi all,

Do we have an updated pager for Monday's NAEMS briefing with Anne? We need to start sending it through the review process today.

Thanks,
Kate

Message

From: Schrock, Bill [Schrock.Bill@epa.gov]
Sent: 6/4/2020 1:58:40 PM
To: Costa, Allison [Costa.Allison@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: Update pager for 6/8 meeting
Attachments: NAEMSStatusUpdate_OAR_06.03.2020_alc_wcs.docx

Attached are my suggested edits.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Thursday, June 04, 2020 6:59 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: Update pager for 6/8 meeting

Ex. 5 Deliberative Process (DP)

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5 am – 1 pm ***

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Wednesday, June 03, 2020 4:23 PM
To: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: Update pager for 6/8 meeting

Ex. 5 Deliberative Process (DP)

Let me know if you have any other edits that I have missed.

Best regards,

Bebhinn

Ms. Bebhinn Do

U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group

109 T.W. Alexander Drive | Research Triangle Park, NC 27711

Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Sullivan, Tim [Sullivan.Tim@epa.gov]
Sent: 8/14/2020 6:36:38 PM
To: Schrock, Bill [Schrock.Bill@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: RE: Revised swine presentation
Attachments: NAEMS_Swine Draft Models_August 2020_ac_BD_TJS.pptx

Thanks, all.

My suggested edits and comments are attached. In the slides, my suggested edits are in red and ~~red strikethrough~~. In the slide notes, my comments and suggested edits are [bracketed].

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Thanks –

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

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<http://www.epa.gov/compliance/complaints/index.html>

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From: Schrock, Bill <Schrock.Bill@epa.gov>
Sent: Friday, August 14, 2020 7:17 AM
To: Sullivan, Tim <Sullivan.Tim@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>
Subject: FW: Revised swine presentation

Tim-Attached is the draft ppt we are planning to use for the swine industry meeting on the 24th. If you could get us any feedback by noon on the 18th that would be great. Thanks.

Bill Schrock
U.S. EPA
RTP, NC 27709
(919) 541-5032
(919) 541-3470 (fax)

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, August 13, 2020 5:01 PM
To: Schrock, Bill <Schrock.Bill@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: Revised swine presentation

Bill,

The attached PowerPoint incorporates Allison's comment and the reorganization we discussed on the phone.

If you are OK with this version, can you forward it to Tim for comment by noon Tuesday? I can make any corrections based on Tim's comments on Tuesday afternoon.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 6/1/2020 2:03:02 PM
To: Eck, Janet [Eck.Janet@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Hagan, Nicole [Hagan.Nicole@epa.gov]
CC: South, Peter [South.Peter@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Shrager, Brian [Shrager.Brian@epa.gov]; Do, Bebhinn [do.bebhinn@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]; Gmyr, Joanna [Gmyr.Joanna@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: Re: Request for 1:1 items - deadline is Friday, 5/29, 3pm
Attachments: NAEMS Status Update_OAQPS_06.01.2020v2.docx

Thanks for sending this response Janet.

See attached if it's not too late. The group made an clarifving edit to the pager:

Ex. 5 Deliberative Process (DP)

From: Eck, Janet <Eck.Janet@epa.gov>
Sent: Monday, June 1, 2020 9:59 AM
To: Koerber, Mike <Koerber.Mike@epa.gov>; Hagan, Nicole <Hagan.Nicole@epa.gov>
Cc: Crowley, Kate <crowley.kate@epa.gov>; South, Peter <South.Peter@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Shrager, Brian <Shrager.Brian@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>; Gmyr, Joanna <Gmyr.Joanna@epa.gov>
Subject: RE: Request for 1:1 items - deadline is Friday, 5/29, 3pm

Ex. 5 Deliberative Process (DP)

From: Koerber, Mike <Koerber.Mike@epa.gov>
Sent: Monday, June 01, 2020 9:07 AM
To: Eck, Janet <Eck.Janet@epa.gov>; Hagan, Nicole <Hagan.Nicole@epa.gov>
Cc: Crowley, Kate <crowley.kate@epa.gov>; South, Peter <South.Peter@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Shrager, Brian <Shrager.Brian@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>; Gmyr, Joanna <Gmyr.Joanna@epa.gov>
Subject: RE: Request for 1:1 items - deadline is Friday, 5/29, 3pm

Is there an actual response – i.e., letter, email,.. – that we are proposing to send? If so, then can you send me a copy?
Thanks.

From: Eck, Janet <Eck.Janet@epa.gov>
Sent: Monday, June 01, 2020 9:05 AM
To: Hagan, Nicole <Hagan.Nicole@epa.gov>
Cc: Koerber, Mike <Koerber.Mike@epa.gov>; Crowley, Kate <crowley.kate@epa.gov>; South, Peter <South.Peter@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Shrager, Brian <Shrager.Brian@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Mills, Kathy <Mills.Kathy@epa.gov>; Gmyr, Joanna <Gmyr.Joanna@epa.gov>
Subject: FW: Request for 1:1 items - deadline is Friday, 5/29, 3pm

Hi Nicole, SPPD would like to include the following topic for today's 1-on-1 w/OAR:

NAEMS Air Compliance Agreement Feedback: The attached pager was forwarded on 5/21 for feedback from OAR but we have not yet received a response. The specific ask in the document is that we would like to confirm OAR-IO's agreement with OGC/OECA's proposed response to a reporter from the Center for Public Integrity, who has requested that EPA provide a compiled list of all the farms, including names and addresses, that participated in a 2005 Air Compliance Agreement on emissions from animal waste.

Thanks.

From: Hagan, Nicole <Hagan.Nicole@epa.gov>

Sent: Thursday, May 28, 2020 10:39 AM

To: Hemby, James <Hemby.James@epa.gov>; Jones, Rhea <Jones.Rhea@epa.gov>; Santiago, Juan <Santiago.Juan@epa.gov>; Kornylak, Vera S. <Kornylak.Vera@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>; South, Peter <South.Peter@epa.gov>; Edwards, Chebryll <Edwards.Chebryll@epa.gov>

Cc: Terry, Sara <Terry.Sara@epa.gov>; Long, Pam <Long.Pam@epa.gov>; Johnson, Yvonne W <Johnson.Yvonnew@epa.gov>; Eck, Janet <Eck.Janet@epa.gov>; Chappell, Regina <Chappell.Regina@epa.gov>; Brown, Kelly <Brown.Kelly@epa.gov>

Subject: Request for 1:1 items - deadline is Monday, 6/1, 8am

Good morning,

Next week's 1:1 meeting is currently scheduled for Monday morning, so if you have any items you'd like raised, please send them forward by Monday, June 1, at 8am.

Thanks!

Nicole A. Hagan, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Phone: (919) 541-3153
Email: hagan.nicole@epa.gov

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 5/29/2020 3:55:05 PM
To: Cozzie, David [Cozzie.David@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]
CC: Do, Bebhinn [do.bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: 6/1 NAEMS status update, for review
Attachments: NAEMS Status Update_06.01.2020.docx

Hi David,

Attached for your review is the pager for Monday's status update on NAEMS with Peter. Please provide any edits by COB today.

Let us know if you have any questions.

Thanks,
Kate

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 10/29/2020 5:54:23 PM
To: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: RE: NACAA Call
Attachments: EmissionEstimatingMethodologiesforAFOs_NACAA_2020.10.29.pptx

If you are joining, the presentation for the call is attached.

BD

From: Do, Bebhinn
Sent: Monday, October 26, 2020 10:34 AM
To: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Banner, Shannon <banner.shannon@epa.gov>
Subject: FW: NACAA Call

I just realized the forward only came to me. The call info is attached if you are interested in listening in on the call. We're the only agenda item.

Bebhinn

Draft Emission Models for Swine Animal Feeding Operations

October 29, 2020

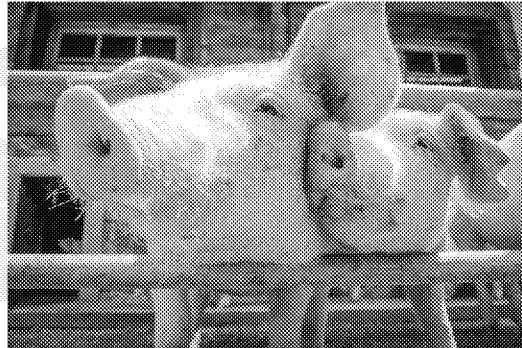


Introduction

- On August 20, 2020, EPA posted draft emission models for animal feeding operations (AFOs) raising swine.
- These draft emission models utilize data collected as part of the National Air Emissions Monitoring Study (NAEMS).
- The emission models provide methods for estimating air emissions of NH_3 , H_2S , and PM (TSP, PM_{10} , $\text{PM}_{2.5}$) from barns, lagoons, and basins at swine operations throughout the country.
- EPA developed approximately 30 emission models for the various emission source and pollutant combinations at swine operations.

Outline

- NAEMS Background
- Emission Models Development Overview
- Improvements from Previous Emission Models
- Uses of the Emission Models
- Limitations of the Emission Models
- Schedule



Background – AFO Air Compliance Agreement (Agreement)

- In 2005, the voluntary Agreement, which includes NAEMS, was initiated in response to a National Academy of Sciences report on the complexity of estimating AFOs' emissions from and industry's concern with ongoing EPA and citizen enforcement activity.
- The Agreement's goals were to:
 - (1) reduce air pollution;
 - (2) monitor AFO emissions;
 - (3) promote a national consensus on emission models; and
 - (4) ensure compliance with requirements of the Clean Air Act (CAA), as well as certain reporting requirements under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Emergency Planning and Community Right-to-Know Act (EPCRA).

8

Air Compliance Agreement

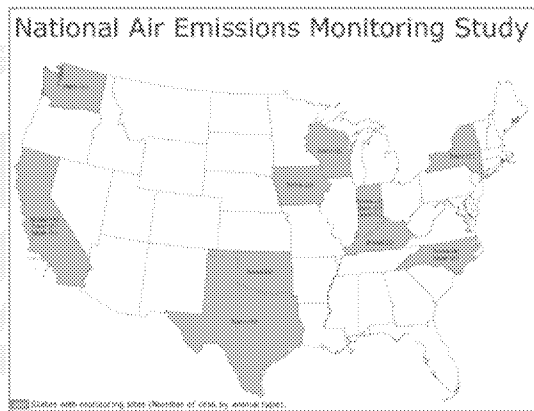
- EPA approved approximately 2,600 Agreements, representing nearly 14,000 participating AFOs.
- Participants paid a civil penalty of between \$200 and \$100,000, based on the size and number of facilities covered by their Agreement. They also were responsible for contributing to a fund to cover the cost of NAEMS.
- As part of the Agreement, EPA agreed not to sue participating AFOs for certain past and ongoing violations of the CAA, CERCLA, and EPCRA during NAEMS, provided that the AFOs comply with the Agreement's conditions.
- Once EPA publishes final emission models for an AFO's animal sector, that AFO must apply the final models to determine what actions, if any, it must take to comply with any applicable CAA requirements.

Agreement Compliance Requirements

- If the emission models demonstrate that a source does not trigger any CAA permitting requirements, the source must certify this outcome to the EPA in writing within **60** days after EPA publishes the emission models applicable to the emission units at that source or facility.
- If the emission models demonstrate that a source triggers CAA permitting requirements, the source must submit all permit applications required by the permitting authority for the source within **120** days.
 - Agreement participants should consult the Agreement for additional specifics related to permitting requirements and control technologies.
 - Farms installing waste-to-energy systems will have an additional **180** days to submit permit applications.
- The annual emissions from a source shall be determined based on current operating methods and on the maximum number of animals housed at the source at any time over the **24** months prior to EPA's publication of the applicable emission models.

NAEMS Overview

- Two-year, industry-funded study resulting from the Agreement.
- Monitored 25 sites (e.g., barns and lagoons) for H₂S, NH₃, PM and VOCs.
- Species: Swine, dairy, egg-layers and broilers; beef cattle and turkey are not included in this study.
- Sites selected based on representation of animal species and geographic location.



NAEMS Timeline

- **2007 – 2010:** NAEMS monitored farm emissions
- **2013:** First group of draft emission models reviewed by EPA's Science Advisory Board (SAB)
- **2014 – 2016:** Gathered data and conducted analyses per SAB recommendations
- **2017 – 2020:** Issued QAPP for data analysis and revised methodology to develop emission models
- **2020 – 2022:** Issue draft models on a rolling basis, by animal species

Model Development Overview

- Select parameters
 - Considered data quantity and potential ease of measurement for a producer
- Create test models for daily emissions
- Select daily emission model
- Evaluate model
- Develop annual emission estimates and estimates of uncertainty

Models Development: Phases of Swine Production

- Based on literature and data analysis, the different phases of swine production and manure management systems can contribute to differences in emission rates.
- EPA developed separate models for:
 - farrowing rooms
 - gestation barns with shallow pits
 - gestation barns with deep pits
 - grow-finish barns with shallow pits
 - grow-finish barns with deep pits
 - lagoons for breeding-gestation farms
 - lagoons for grow-finish farms
 - basins

Models Development: Daily Model Form

$$Y_p(\ln\{\text{pollutant}\}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Where:

Y_p is the log transformed emissions

β_0 is a constant

X_i is a predictive parameter (e.g., ambient temperature, wind speed)

β_i is the coefficient for parameter X_i

Model Development: Annual Emissions Estimate

- Estimate annual emissions by summing the daily emissions over the course of a year
- Develop uncertainty estimates for each annual model
- Develop total farm uncertainty by combining the uncertainty for each component of the farm (e.g., barns and lagoons)

Improvements from Previous Emission Models

- Used linear regressions, which prevents inconsistent results for extreme values
- Adjusted parameter selection to include more robust literature review
- Expanded the criteria to evaluate model performance
 - Added residual plots (i.e., model fit plots) and calculated model performance statistics.
- Refined evaluation approach to the “minus-one-house” technique, which is a more refined statistical approach with temporally correlated data

Uses of the Emission Models

- These models *estimate* emissions.
- Air Compliance Agreement participants ***must*** use the final models to determine whether their emissions trigger certain Clean Air Act permitting requirements.
- Other swine AFOs ***may*** use the final models to determine whether their emissions trigger certain Clean Air Act permitting requirements.
- The final models may also be useful for general estimates of emissions from swine operations across the US or comparisons between operations in different regions.
- The current *draft* models should ***not*** be used for these purposes until they are finalized.
- When the models are final, EPA will provide a tool that will apply the models to estimate emissions for farms.

Limitations of the Emission Models

- The models do not estimate emissions from all pollutants, or all emission sources found on swine operations.
- The models do not incorporate all the site-specific management factors that can affect emissions.
- The models cannot be used to quantify impacts of best management practices on emissions.

Schedule

Date	Milestone	Status
September 2019	Call for information for additional VOC data	Complete
August 2020	Draft models for ammonia, hydrogen sulfide and particulate matter emissions from swine farms	Complete
June 2021	Draft models for ammonia, hydrogen sulfide and particulate matter emissions from poultry (broiler and layer) farms	In Progress
December 2021	Draft models for ammonia, hydrogen sulfide and particulate matter emissions from dairy farms	
February 2022	Draft models for volatile organic compound emissions from swine, poultry and dairy farms	
TBD	Stakeholder review period	
TBD	Finalization of all AFO emission models	

- Schedule is available on the project website: www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status

Contact Information

www.epa.gov/afos-air/national-air-emissions-monitoring-study

NAEMS@epa.gov

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Appendix: Swine Emission Models

Emission Models: Farrowing Rooms

Manure Management System	Pollutant	Intercept	Cycle day	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
All	H ₂ S	2.142329	0.129797		0.061406	
All	NH ₃	0.68875	0.001961	0.000581	0.008405	
All	PM ₁₀	2.489915	0.055625		0.106263	-0.003436
All	PM _{2.5}	-1.21456	0.075902		0.256357	
All	TSP	2.858928	0.070551		0.147305	-0.004908

Emission Models: Breeding and Gestation Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified/No Pit	H ₂ S	2.077258	0.003547	0.019862	
	NH ₃	0.154785	0.006855	0.009122	
Deep	H ₂ S	3.171852	0.003844	0.019592	
	NH ₃	0.834777	0.011778	0.007899	
Shallow	H ₂ S	2.130472	0.003844	0.019592	
	NH ₃	0.30747	0.011778	0.007899	
All	PM ₁₀	5.186761		0.005472	-0.007661
	PM _{2.5}	4.88715		0.0007	
	TSP	5.533966		0.006601	-0.008

Emission Models: Grow-Finish Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified (No Pit)	H ₂ S	4.081979	-0.006592	0.017163	
	NH ₃	1.236262	0.008953	0.008939	
Deep	H ₂ S	4.991579	-0.005539	0.013317	
	NH ₃	1.342386	0.009077	0.008545	
Shallow	H ₂ S	4.190492	-0.005539	0.013317	
	NH ₃	1.142239	0.009077	0.008545	
All	PM ₁₀	5.503943		0.010447	-0.009403
	PM _{2.5}	2.49543		0.01095	-0.002279
	TSP	6.26614		0.011813	-0.008831

Emission Models: Lagoons and Basins

Source	Operation Type	Pollutant	Intercept	Ambient Temperature (°C)	Wind Speed (ms ⁻¹)
Lagoon	Breeding - Gestation	H ₂ S	4.435746		0.236141
Lagoon	Breeding - Gestation	NH ₃	0.582053	0.055673	0.091428
Lagoon	Grow-Finish	H ₂ S	3.694758		0.279011
Lagoon	Grow-Finish	NH ₃	-0.680078	0.085372	0.131932
Basin	Grow-Finish	H ₂ S	0.4689	0.027	
Basin	Grow-Finish	NH ₃	1.5049	0.01171	

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 9/28/2020 2:28:36 PM
To: Crowley, Kate [crowley.kate@epa.gov]
CC: Mills, Kathy [Mills.Kathy@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: Slide review for Region 7 presentation
Attachments: NAEMS_Swine Draft Models_R7_2020.09.23.pptx

Kate,

Attached are a set of slides for your review. The talk is Tuesday (sorry!) for Region 7's Air Program Meeting.

Ex. 5 Deliberative Process (DP)

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 9/23/2020 7:19:25 PM
To: Costa, Allison [Costa.Allison@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]
Subject: RE: Presentation for Region 7 talk
Attachments: NAEMS_Swine Draft Models_R7_2020.09.23.pptx

I clean up the slides based on comments (I really wish they would let us track changes in PowerPoint).

Do either of you want one more look before I send them to Robin/Kate?

Bebhinn

From: Sullivan, Tim <Sullivan.Tim@epa.gov>
Sent: Wednesday, September 23, 2020 1:31 PM
To: Costa, Allison <Costa.Allison@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>
Subject: RE: Presentation for Region 7 talk

Thanks, everyone—slides look good.

My edits and comments are included in the attached. Please let me know if you have any questions.

Thanks –

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

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<http://www.epa.gov/compliance/complaints/index.html>

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From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Wednesday, September 23, 2020 7:33 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Sullivan, Tim <Sullivan.Tim@epa.gov>

Cc: Schrock, Bill <Schrock.Bill@epa.gov>
Subject: RE: Presentation for Region 7 talk

Hi all,
I added a few edits for consistency. Sorry for the tardiness!

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 6:30 am – 3:00 pm ***

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Tuesday, September 22, 2020 3:30 PM
To: Sullivan, Tim <Sullivan.Tim@epa.gov>
Cc: Schrock, Bill <Schrock.Bill@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>
Subject: Presentation for Region 7 talk

Tim,

I pulled together slides for the presentation for R7 (attached) **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Dunkins, Robin [Dunkins.Robin@epa.gov]
Sent: 9/21/2020 5:47:22 PM
To: Costa, Allison [Costa.Allison@epa.gov]
Subject: FW: Request for 1:1 items - deadline is Monday 9/21, 8 AM

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.rob@epa.gov

From: South, Peter <South.Peter@epa.gov>
Sent: Monday, September 21, 2020 8:03 AM
To: Lavoie, Tegan <lavoie.tegan@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Eck, Janet <Eck.Janet@epa.gov>; Cozzie, David <Cozzie.David@epa.gov>
Subject: FW: Request for 1:1 items - deadline is Monday 9/21, 8 AM

Hi Tegan,
One entry for SPPD. Feel free to call me with any questions.

Thanks,
Pete
919 541-5359

National Air Emissions Monitoring Study (NAEMS) Status Update

Ex. 5 Deliberative Process (DP)

Message

From: Crowley, Kate [crowley.kate@epa.gov]
Sent: 9/18/2020 2:30:28 PM
To: Costa, Allison [Costa.Allison@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: Draft NAEMS Bullets for OAR 1:1

No edits from me, thanks.

Kate Crowley | U.S. EPA | OAQPS | Sector Policies and Programs Division | (919) 541-9420 | crowley.kate@epa.gov

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Friday, September 18, 2020 10:28 AM
To: Crowley, Kate <crowley.kate@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: Draft NAEMS Bullets for OAR 1:1

Hi Robin and Kate,

Ex. 5 Deliberative Process (DP)

National Air Emissions Monitoring Study (NAEMS) Status Update:

Ex. 5 Deliberative Process (DP)

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
* Current Hours: 6:30 am – 3:00 pm *

Message

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 8/17/2020 4:09:02 PM
To: Schrock, Bill [Schrock.Bill@epa.gov]
CC: Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Stakeholder slides
Attachments: NAEMS_Swine Draft Models_08.17.2020.pptx

Bill,

Tim's comments were straightforward. The updated presentation is attached.

Since Robin seems super busy, I was thinking about sending them to Kate (with Robin cc'ed) to push up the chain. Does that sound OK with you?

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Costa, Allison [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B345CA759FAE4B7FB1AFA4C500D4CFB7-ACOSTA]
Sent: 8/11/2020 11:33:04 AM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: Comms Comments on NAEMS Materials
Attachments: Fact Sheet_swine models_081020_kc_ac.docx; NAEMS Swine Rollout_081020_kc_ac.docx

Kate's edits on the rollout plan were straightforward, but there were several comments on the fact sheet. I've put some responses in comment bubbles, but wanted to get your opinions before sending it back to her.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5:30 am – 3:30 pm ***

Message

From: Costa, Allison [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B345CA759FAE4B7FB1AFA4C500D4CFB7-ACOSTA]
Sent: 8/10/2020 11:06:56 AM
To: Sullivan, Tim [Sullivan.Tim@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Walker, JohnT [Walker.Johnt@epa.gov]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]; Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]
Subject: FW: NAEMS update pager (comments)
Attachments: NAEMS Status Update_08.07.2020.docx

Hi Will/John and Tim,

Attached is the final pager summarizing the comments on NAEMS and immediate next steps. We sent this up our management chain as an FYI on Friday, since Anne Austin had requested info on USDA's comments at our last meeting. Feel free to share internally within your offices.

Cheers,
Allison

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5:30 am – 3:30 pm ***

Message

From: Costa, Allison [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B345CA759FAE4B7FB1AFA4C500D4CFB7-ACOSTA]
Sent: 6/3/2020 2:00:23 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Crowley, Kate [crowley.kate@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: Final PPT for Ag Advisor
Attachments: AgCleanAirAct_Meadows_06.03.2020_final.ppt

Corrected date per David's note

Allison Costa
U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS
109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711
Phone: 919.541.1322 | email: Costa.Allison@epa.gov
*** Current Hours: 5 am – 1 pm ***

Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 1/6/2021 6:48:27 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]
Subject: AAPCA Emissions Inventory Committee Meeting
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx
Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Busy

Required Attendees: Do, Bebhinn; Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison; Dietrich, Yijia

We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): [Ex. 6 Personal Privacy \(PP\)](#) / Conference ID: [Ex. 6 Personal Privacy \(PP\)](#)
[Find a local number](#) | [Reset PIN](#) | [Learn More](#) | [Meeting options](#)

Putting a hold on everyone's calendar for the Association of Air Pollution Control Agencies (AAPCA, <https://cleanairact.org/>) Emission Inventory Committee call on January 28 at 3PM Eastern.

This will be an opportunity to present an update on the NAEMS study to their member states. The presentation will be the same as the R7/NACAA slide deck (attached).

I will update with the specific call in information as soon as it is received.

Please let me know if you would like any additional staff added to the invite.

Bebhinn

919 541-0573 | do.bebhinn@epa.gov

Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 7/24/2020 12:25:05 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]

Subject: schedule discussion
Attachments: NAMES_Schedule_Gantt_Version3.1.xlsx
Location: Microsoft Teams Meeting

Start: 7/24/2020 12:30:00 PM
End: 7/24/2020 1:30:00 PM
Show Time As: Busy

Required Attendees: Costa, Allison; Banner, Shannon

We'll discuss the schedule in a second. A couple more edits are attached.

Join Microsoft Teams Meeting

+ Ex. 6 Personal Privacy (PP) United States, Raleigh (Toll)

Conference Ex. 6 Personal Privacy (PP)

[Local numbers](#) | [Reset PIN](#) | [Learn more about Teams](#) | [Meeting options](#)

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Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 1/6/2021 6:48:27 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: AAPCA Emissions Inventory Committee Meeting
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx
Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Busy

Required Attendees: Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison

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Call-in (audio only): [Ex. 6 Personal Privacy \(PP\)](#) Conference ID: [Ex. 6 Personal Privacy \(PP\)](#)
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Bebhinn

919 541-0573 | do.bebhinn@epa.gov



U.S. ENVIRONMENTAL PROTECTION AGENCY

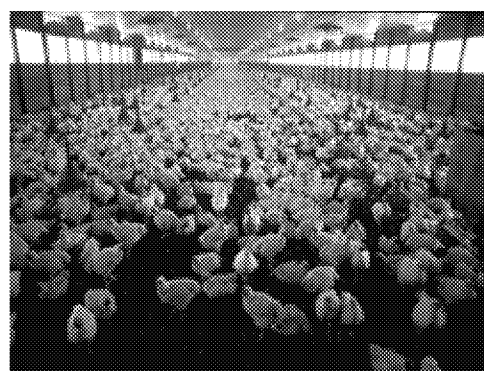
OFFICE OF INSPECTOR GENERAL

Improving air quality

**Eleven Years After Agreement,
EPA Has Not Developed Reliable
Emission Estimation Methods to
Determine Whether Animal
Feeding Operations Comply With
Clean Air Act and Other Statutes**

Report No. 17-P-0396

September 19, 2017



Report Contributors:

Richard Jones
Erica Hauck
Jim Hatfield
Kevin Good
Julie Narimatsu

Abbreviations

AFO	Animal Feeding Operation
CAA	Clean Air Act
CAFO	Concentrated Animal Feeding Operation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DQO	Data Quality Objective
EEM	Emissions Estimating Methodology
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
GAO	U.S. Government Accountability Office
NAEMS	National Air Emissions Monitoring Study
NAS	National Academy of Sciences
OAQPS	Office of Air Quality Planning and Standards
OIG	Office of Inspector General
PM	Particulate Matter
SAB	Science Advisory Board
USDA	U.S. Department of Agriculture
VOC	Volatile Organic Compound

Cover photos: Hogs (left) and chickens (right) in confined spaces at animal feeding operations. (EPA photos)

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At a Glance

Why We Did This Review

We conducted this review to determine what actions the U.S. Environmental Protection Agency (EPA) has taken to evaluate air emissions from animal feeding operations.

The EPA estimates there are about 18,000 large animal feeding operations nationwide, which can potentially emit air pollutants in high-enough quantities to subject these facilities to Clean Air Act and other statutory requirements. A lack of reliable methods for estimating these emissions prevented the EPA and state and local agencies from determining whether these operations are subject to statutory requirements.

In 2005, the EPA and the animal feeding operations industry entered into a compliance agreement to address this challenge. As part of this agreement, the industry agreed to fund an air emissions monitoring study that the EPA would use to develop improved emission estimating methodologies for the industry.

This report addresses the following:

- *Improving air quality.*

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Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes

What We Found

The industry-funded National Air Emissions Monitoring Study (NAEMS) and the EPA's analyses of the study's results comprised the agency's primary actions to evaluate air emissions from animal feeding operations over the past decade. The NAEMS monitoring was completed more than 7 years ago at a cost of about \$15 million, but the EPA had not finalized any emission estimating methodologies for animal feeding operations. In addition, the EPA had only drafted methodologies for about one-fourth of the emission source and pollutant combinations studied in the NAEMS. The EPA expected to develop and begin publishing emission estimating methodologies by 2009, so the methodologies could be used by the EPA, state and local agencies, and industry operators to determine the applicability of Clean Air Act and other statutory requirements.

Until the EPA develops sound methods to estimate emissions, the agency cannot reliably determine whether animal feeding operations comply with applicable Clean Air Act requirements.

Delays in developing the emission estimating methodologies stemmed from limitations with NAEMS data, uncertainty about how to address significant feedback from the EPA's Science Advisory Board, and a lack of EPA agricultural air expertise and committed resources. The EPA had not finalized its work plan or established timeframes to finish the methodologies. As a result, the applicability of requirements to control emissions from individual animal feeding operations remained undetermined, enforcement protections for consent agreement participants remained in effect longer than anticipated, and a number of agency actions on animal feeding operation emissions continued to be on hold. Further, because the EPA had not conducted systematic planning, the agency was at risk of developing emission estimating methodologies that cannot be widely applied to animal feeding operations.

Recommendations and Planned Corrective Actions

We recommend that the EPA conduct systematic planning for future development of emission estimating methodologies. Based on the results of this planning, the EPA should determine whether it can develop emission estimating methodologies of appropriate quality for each of the emission source and pollutant combinations studied. If the EPA determines that it cannot develop certain emission estimating methodologies, it should notify agreement participants and end civil enforcement protections. For the emission estimating methodologies that can be developed, the EPA should establish public milestones for issuing the draft methodologies. The EPA agreed with our recommendations, and we accepted the agency's planned corrective actions.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

September 19, 2017

MEMORANDUM

SUBJECT: Eleven Years After Agreement, EPA Has Not Developed
Reliable Emission Estimation Methods to Determine Whether
Animal Feeding Operations Comply With Clean Air Act and Other Statutes
Report No. 17-P-0396

FROM: Arthur A. Elkins Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins Jr.", written over the printed name.

TO: Sarah Dunham, Acting Assistant Administrator
Office of Air and Radiation

Lawrence Starfield, Acting Assistant Administrator
Office of Enforcement and Compliance Assurance

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). The project number for this evaluation was OPE-FY16-0018. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

Action Required

In accordance with EPA Manual 2750, your office provided planned corrective actions in response to the OIG recommendations. We consider the planned corrective actions for all recommendations to be acceptable. Therefore, you are not required to provide a written response to this final report. The OIG may make periodic inquiries on your progress in implementing these corrective actions. Please update the EPA's Management Audit Tracking System as you complete planned corrective actions.

We will post this report to our website at www.epa.gov/oig.

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Chapter 1

Introduction

Purpose

We conducted this evaluation to determine what actions the U.S. Environmental Protection Agency (EPA) has taken to evaluate air emissions from animal feeding operations (AFOs), including the status of the National Air Emissions Monitoring Study (NAEMS).

Background

AFOs are agriculture operations where animals are kept and raised in confined areas. The U.S. Department of Agriculture (USDA) has estimated that there are about 450,000 AFOs nationwide. While the majority of these are small operations with fewer than 300 animals, the EPA has estimated there are more than 18,000 large AFOs¹ that may raise thousands of animals. For more than two decades, movements to improve profitability within the agriculture industry have resulted in larger AFO facilities that often are geographically concentrated. As facility size has increased and greater numbers of animals are housed in confined spaces, concerns have arisen regarding these facilities' impacts on the environment and public health.

The EPA regulates certain larger AFOs under the Clean Water Act's National Pollutant Discharge Elimination System permit program, which regulates the discharge of pollutants to the waters of the United States. AFO air emissions are not regulated by any AFO-specific standards under the Clean Air Act (CAA), but AFOs that emit air pollutants in sufficient quantities can trigger CAA permit requirements. In the late 1990s, the EPA recognized that it did not have sufficient AFO air emissions data to develop reliable emission estimating methodologies (EEMs) for determining whether individual AFOs are subject to CAA permit requirements or emission reporting requirements under two other statutes: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA).² Both CAA permitting requirements and CERCLA/EPCRA release

¹ EPA water regulations define AFOs and a subset of larger AFOs called concentrated animal feeding operations (CAFOs), and the Clean Water Act includes CAFOs as a type of point source. The CAA does not define or reference these terms, and the EPA's Office of Air and Radiation does not distinguish between an AFO and a CAFO. Thus, we use the term "AFO" throughout our report, even when referring to a facility that would meet the definition of a CAFO under the Clean Water Act.

² EPCRA and CERCLA require facilities to report emissions of certain hazardous substances if they are released in quantities at or above certain thresholds. This includes two hazardous substances commonly released by AFOs: ammonia and hydrogen sulfide.

reporting requirements are triggered only if a facility emits certain pollutants at or above specific regulatory thresholds.

The agency began discussions with representatives of the AFO industry in 2001 to address uncertainty in determining the applicability of statutory requirements for air emissions. As a result, the EPA and certain sectors of the AFO industry³ (e.g., pork and broiler producers, egg layers, and dairy) negotiated a consent agreement, which was published in 2005⁴ and entered into by AFO owners/operators who elected to participate. Under this agreement, participating AFO owners/operators agreed to pay a civil penalty, comply with all applicable requirements of the agreement, and participate (if selected) in a national monitoring study. The AFO sectors agreed to fund the monitoring study to provide data the EPA would use to develop EEMs for various AFO pollutants and emission sources.

Air Emissions From AFOs

AFOs can release several pollutants, including but not limited to: ammonia, hydrogen sulfide, particulate matter (PM), volatile organic compounds (VOCs) and hazardous air pollutants. AFO air emissions come from lagoons, barns and other structures, and manure spread on fields. Table 1 lists the key pollutants emitted from AFOs, along with their common emission sources and associated health and air quality effects.

Table 1: Emission sources and health effects of key pollutants from AFOs

Pollutant	Common emission sources	Health and air quality effects
Ammonia (NH ₃)	Decomposition of animal manure.	Can cause severe cough and chronic lung disease. It also contributes directly to the formation of PM _{2.5} , and deposition can impact sensitive ecosystems.
Volatile organic compounds (VOCs)	Animal feed and waste.	Can cause eye, nose and throat irritation; damage to liver, kidney and central nervous system; and cancer. VOCs also contribute to the formation of ground-level ozone.
Particulate matter (PM)*	Dry manure, bedding and feed materials, and dirt feed lots.	Exposure is linked to a variety of problems, including decreased lung function, increased respiratory symptoms, and premature death in people with heart or lung disease.
Hydrogen Sulfide (H ₂ S)	Decomposition of animal manure stored in wet conditions such as lagoons.	Can cause eye and respiratory irritation at lower concentrations. At higher concentrations, paralysis of the respiratory center can lead to rapid death. Excess emissions can contribute to the formation of PM _{2.5} and acid rain.

Source: EPA Office of Inspector General (OIG) analysis.

* PM includes both fine particles (PM_{2.5},) and coarser particles (PM₁₀).

³ According to the EPA, state and local agencies, and an environmental organization also participated in initial discussions on the agreement.

⁴ Animal Feeding Operations Consent Agreement and Final Order, 70 Fed. Reg. 4958-4977 (Jan. 31, 2005).

AFOs can be located near residences, and some communities have multiple AFOs nearby. For example, several counties in eastern North Carolina have the highest concentration of swine AFOs in the United States. Some studies have raised concerns that lower-income and minority communities are disproportionately impacted by air emissions from AFOs. Studies conducted in North Carolina found that residents living near swine AFOs were disproportionately low-income people of color. Air pollution from these AFOs is associated with the potential health impacts listed in Table 1 above, as well as a reduced quality of life due to persistent odors⁵ and declining property values.⁶

Highlights from external studies on impacts from AFO air emissions:

- **Residential property values were reduced by an average of almost 23 percent within 1.25 miles of a large swine AFO.^a**
- **The closer children go to school near a large AFO, the greater the risk of asthma symptoms.^b**
- **Living in close proximity to large swine AFOs may result in impaired mental health and negative mood states, such as tension, depression or anger.^{c, d}**

^a Simons, R.A. et al., 2014. The Effect of a Large Hog Barn Operation on Residential Sales Prices in Marshall County, KY. JOSRE. 6(1).

^b Mirabelli, M. C. et al., 2006. Asthma Symptoms Among Adolescents Who Attend Public Schools That Are Located Near Confined Swine Feeding Operations. Pediatrics. 118;66-75.

^c Bullers, S., 2005. Environmental Stressors, Perceived Control, and Health: The Case of Residents Near Large-Scale Hog Farms in Eastern North Carolina. Human Ecology. 33(1).

^d Schiffman, S. S. et al., 1995. The Effect of Environmental Odors Emanating From Commercial Swine Operations on the Mood of Nearby Residents. Brain Research Bulletin. 37(4): 369-375.

Characterizing air emissions from AFOs is difficult due to a number of factors. AFOs can have many and varied sources of air emissions, including barns, houses, feedlots, pits, lagoons, basins and manure spray fields. Each of these emission sources can emit a variety of air pollutants, and emission rates can fluctuate depending on climate and geographical conditions, among other factors. Further, characterizing AFO air emissions requires expertise in multiple scientific disciplines, including animal nutrition, AFO practices and atmospheric chemistry.

The EPA and the USDA have been collaborating on a manual of voluntary best management practices to provide AFO owner/operators and state and local governments with options to reduce AFO air emissions. The manual contains best management practices for reducing particulate matter, ammonia, hydrogen sulfide, and other air emissions through various aspects of AFO management, including feed management, manure management, land application, and other areas. The EPA plans to publish the manual before the end of 2017, pending agency administration approval.

⁵ Odors are not regulated by the EPA, but may be addressed under some state and local laws.

⁶ Simons, R.A. et al., 2014. The Effect of a Large Hog Barn Operation on Residential Sales Prices in Marshall County, KY. JOSRE. 6(1).

Kim, J. et al., 2009. A Spatial Hedonic Approach to Assess the Impact of Swine Production on Residential Property Values. Environ Resource Econ. 42: 509-534.

National Academy of Sciences Report on AFO Air Emissions

In 2001, the EPA and USDA jointly requested that the National Academy of Sciences (NAS) evaluate the body of scientific information used for estimating various kinds of air emissions from AFOs. In 2003, the NAS reported⁷ that accurate emissions estimates were needed to determine AFOs' potential impacts and to assess the implementation of measures to control emissions. The NAS also reported that the EPA had not dedicated the necessary resources to estimate AFO air emissions, and that the agency's approach to estimating emissions was inadequate. That approach involved deriving emission factors from published emissions data, as well as gathering emission factors from existing literature. These emission factors were then applied to representative farms to estimate annual mass emissions. The NAS reported that this approach did not account for the variability among AFOs (e.g., differences in geography and climate) and thus cannot adequately estimate air emissions from an individual AFO.

The NAS recommended that the EPA develop a "process-based" approach to estimate AFO air emissions. The NAS favored such an approach for most types of emissions as the primary focus for both short- and long-term research,⁸ but also stated that short-term research should focus on providing "defensible estimates of air emissions that could be used to support responsible regulation."⁹ The NAS described process-based models as mathematical models "that describe the movement of various substances of interest at each major stage of the process of producing livestock products: movement into the next stage, movement in various forms to the environment, and ultimately movement into products used by humans."¹⁰

Air Compliance Agreement With AFO Industries

In 2002, spurred in part by uncertainty about emission levels from AFOs and concerns about applicability of CAA requirements, representatives of the pork, egg producers, and other AFO sectors proposed a plan to EPA officials to produce air emissions monitoring data from AFOs. Negotiations between the EPA and AFO sectors¹¹ lasted for more than 2 years before an agreement was finalized in 2005. As a condition of the 2005 Air Compliance Agreement (henceforth, the "Agreement"), the industry agreed to fund a large-scale emissions monitoring study. The EPA was to use the emissions monitoring data to develop EEMs that

⁷ *Air Emissions from Animal Feeding Operations: Current Knowledge, Future Needs*, NAS National Research Council (2003).

⁸ 2003 NAS report, pp. 152-153.

⁹ 2003 NAS report, p. 25.

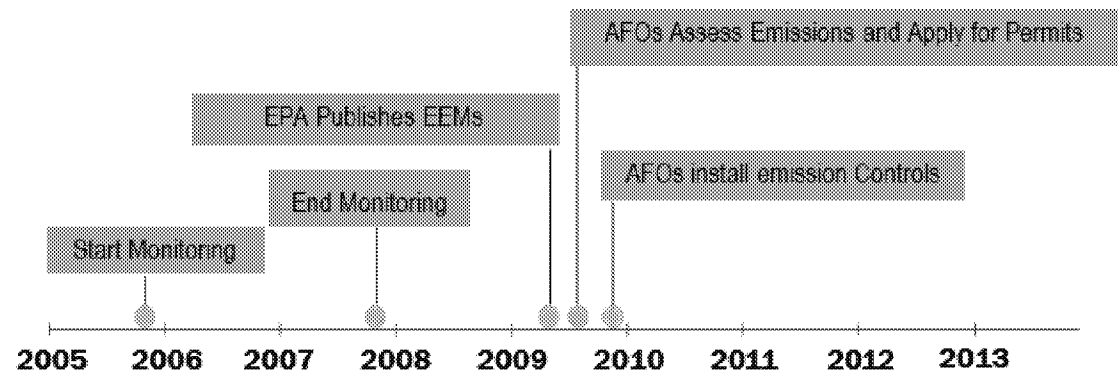
¹⁰ 2003 NAS report, p. 9.

¹¹ Participating AFO sectors included egg layers, broiler chickens, dairy cattle and swine. The turkey sector was a part of the negotiations as well, but not enough turkey AFO owners/operators signed up to fund monitoring. The Agreement did not cover beef cattle.

AFOs could apply to estimate their emissions and determine the applicability of CAA permitting and CERCLA/EPCRA release reporting requirements. Once a facility applied the EEMs to determine its emissions, the facility was to submit all required CAA permit applications and/or report any hazardous substance releases requiring notice under CERCLA/EPCRA.¹²

The Federal Register Notice (henceforth, the “Notice”) that published the Agreement included the EPA’s expectation that the emissions monitoring study would begin in 2005 and last 2 years. The Notice also described the EPA’s expected timeframes for completing the tasks subsequent to the study. Based on these original expectations, the EPA would begin publishing final EEMs in 2009, and AFOs would have obtained any necessary permits and installed emission controls by 2010. Figure 1 shows the timing for these different activities.

Figure 1: Expected timeframes for monitoring study and EEM development



Source: OIG analysis of the Notice publishing the Agreement. 70 Fed. Reg. 4958-4977 (Jan. 31, 2005).

¹² In a 2008 rule, the EPA exempted from CERCLA Section 103 reporting requirements all releases of hazardous substances to the air from animal waste at AFOs. The rule also exempted such releases from EPCRA Section 304 reporting requirements, except when AFOs confine a number of animals at or above the large CAFO threshold, as defined under Clean Water Act regulations. However, on April 11, 2017, the U.S. Court of Appeals for the District of Columbia Circuit ruled in favor of a group of environmental organizations that challenged the exemption and ordered that the 2008 rule be vacated (*Waterkeeper Alliance et al. v. EPA*). On July 17, 2017, the EPA filed a motion requesting the Court grant a stay of the ruling for six months to allow the EPA time to develop guidance for farms on reporting requirements. On August 16, 2017, the Court ordered a stay of the ruling through November 14, 2017. The EPA has 75 days from August 16, 2017, to request an extension of the stay if needed.

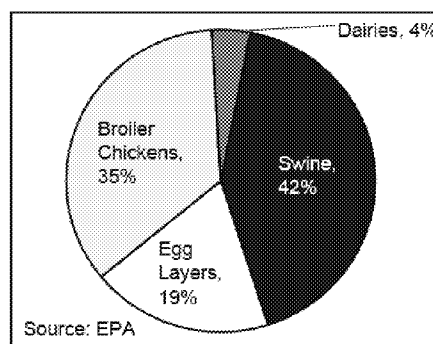
Primary provisions for AFOs participating in the Air Compliance Agreement include:

- Pay up to \$2,500 per farm to fund a 2-year emissions study.
- Agree to make their property available for emissions monitoring if selected as a monitoring site for the study.
- Pay a civil penalty ranging from \$200 to \$1,000, depending on the size and number of AFOs covered by the participant's Air Compliance Agreement.
- Receive protection from enforcement actions for civil violations of the CAA, CERCLA and EPCRA, to last until either (1) the EPA finalizes EEMs, or (2) the EPA notifies the facility that it was unable to finalize EEMs.

Under the Agreement, participating AFOs were granted a release and covenant not to sue for potential CAA, CERCLA and EPCRA violations alleged in the Agreement (henceforth, “civil enforcement protections”) until the EEMs are developed and AFOs apply for applicable CAA permits and report qualifying releases under CERCLA and EPCRA, or the EPA determines it cannot develop EEMs and notifies Agreement participants accordingly.

The EPA entered into 2,568 separate agreements with AFO owners and operators, which covered about 13,900 AFOs in 42 states. According to the EPA, these 13,900 AFOs comprise more than 90 percent of the largest AFOs in the United States. Figure 2 illustrates the percentage of all Agreement participants by type of animal raised.

Figure 2: Agreement participants by type of animal raised



Monitoring Study Methodology

About \$15 million was collected from the AFO sectors participating in the Agreement to fund the NAEMS emissions study. The NAEMS protocol provided the framework for the field sampling plan, and was developed through a collaborative effort of industry experts, university scientists, EPA and other government scientists, and other stakeholders knowledgeable in the field. The Agricultural Air Research Council—a nonprofit organization established by industry—was responsible for managing and disbursing funds for the study.

The Agricultural Air Research Council was also responsible for selecting a Science Advisor to develop a detailed study design and quality assurance plan, and to oversee the emissions monitoring work, including work conducted by the contracted principal investigators. The principal investigators—most of whom were researchers at land grant universities with expertise in animal agriculture and/or emissions measurement—carried out the monitoring at selected sites. EPA staff did not collect monitoring data, but conducted audits at monitoring sites to ensure that proper techniques and protocols were followed.

Monitoring was conducted at 27 total sites (i.e., specific sources of emissions such as a barn or a lagoon).¹³ Measurements of ammonia, particulate matter (PM₁₀ and PM_{2.5}),¹⁴ total suspended particulates, VOCs, hydrogen sulfide, and carbon dioxide¹⁵ were taken at broiler chicken, egg layer, swine, and dairy confinement sites (e.g., houses and barns). Measurements of ammonia, hydrogen sulfide, and VOCs were taken at swine and dairy open-source sites (e.g., lagoons and basins). Figure 3 shows the location of monitoring sites across the country.

Figure 3: NAEMS monitoring site locations



Source: OIG analysis of NAEMS site reports.

Other types of measurements were also taken at monitoring sites to help characterize emissions. These measurements included meteorological data (such as temperature and wind speed), and information on the number of animals at AFO monitoring locations, how the animals were housed, and how their waste was managed. The Agreement stated that the EPA would use data from the NAEMS and any other relevant data to develop EEMs.

¹³ The 27 monitoring sites were located at 23 AFOs. Monitoring was conducted at two sites (emission sources) for four of the 23 participating AFOs.

¹⁴ PM₁₀ describes inhalable particles with diameters that are generally 10 micrometers and smaller. PM_{2.5} describes fine inhalable particles with diameters that are generally 2.5 micrometers and smaller.

¹⁵ While carbon dioxide was measured at confinement sites as part of the NAEMS, the EPA never intended to create EEMs for carbon dioxide emissions.

Responsible Offices

The EPA office primarily responsible for development of the Agreement was the Office of Enforcement and Compliance Assurance. The EPA office responsible for developing EEMs from the NAEMS data is the Office of Air Quality Planning and Standards within the EPA's Office of Air and Radiation, while the Office of Research and Development plays a supporting role.

Scope and Methodology

We conducted our performance audit from April 2016 through May 2017, in accordance with generally accepted government auditing standards. Those standards require that we obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objective. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

To address our objective, we identified and reviewed applicable statutes, regulations, policies and guidance, including sections of the CAA and the Clean Water Act, CAA permitting requirements and thresholds, and the Agreement and associated monitoring protocol. To help us determine the status of the EPA's NAEMS, as well as other efforts to evaluate AFO air emissions, we obtained and reviewed EPA emission reports and analyses, NAEMS-related reports and studies, an EPA Science Advisory Board (SAB) report, and documents related to EPA legal proceedings.

To determine state efforts to address AFO air emissions, we reviewed state regulations and programs for a selected number of states. We also reviewed petitions requesting that the EPA regulate AFO air emissions, and an administrative complaint alleging discrimination against minorities in North Carolina in permitting AFOs. In addition, we reviewed academic studies and reports to determine AFO air emissions and health impacts, and potential disparate impacts in overburdened communities.

We interviewed EPA staff and managers in the Office of Air Quality Planning and Standards, the Office of Enforcement and Compliance Assurance, the Office of Research and Development, the Office of Civil Rights, the Office of Water, and EPA Region 4 (which covers North Carolina), to gain an understanding of EPA actions to evaluate and address AFO air emissions. We also interviewed the following stakeholders to discuss the Agreement and the history and status of the NAEMS:

- USDA's Natural Resources Conservation Service staff.
- SAB members who reviewed the EPA's draft EEMs.
- An AFO industry advisor.
- AFO academic researchers at Purdue University, North Carolina State University, and University of North Carolina-Chapel Hill.

In addition, we interviewed organizations (Sierra Club, Food & Water Watch, EarthJustice, Waterkeeper Alliance) that submitted CAA petitions to regulate AFO emissions. We also interviewed organizations that submitted a Title VI administrative complaint (the North Carolina Environmental Justice Network and the Rural Empowerment Association for Community Help) alleging discrimination in AFO permitting in North Carolina.

To assess internal controls, we reviewed EPA policies and guidance on quality assurance, including the following:

- The EPA's Quality Policy.
- The EPA's Procedure for Quality Policy.
- The EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process*.
- The EPA's Office of Air Quality Planning and Standards' Quality Management Plan.

We also reviewed the quality assurance project plans developed for the NAEMS and early draft EEM development.

Prior Report

In September 2008, the U.S. Government Accountability Office (GAO) issued a report on AFOs titled *Concentrated Animal Feeding Operations: EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern* (GAO-08-944). GAO reported that the EPA did not have the data needed to effectively regulate CAFO air emissions; specifically, the EPA lacked data on air emission from CAFOs, which the EPA is trying to address through the NAEMS. GAO found that the EPA lacked consistent and accurate data for CAFOs regulated under the Clean Water Act, and that such data—like the locations of the CAFOs—could assist with an assessment of CAFO air emissions. GAO reported that two, then-recent decisions by the EPA suggest that the agency had not yet determined how it intended to regulate air emissions from CAFOs:

- The EPA proposed to exempt releases to the air of hazardous substances from farm manure from both CERCLA and EPCRA notification requirements.
- The EPA stated it will not make key regulatory decisions on how federal air regulations apply to CAFOs until after the NAEMS is completed.

GAO recommended that the EPA (1) reassess the data collection efforts of the NAEMS, and (2) establish a strategy and timetable for developing process-based emission estimating protocols for CAFOs. GAO determined that the EPA has implemented the first recommendation but has not completed the second one.

Chapter 2

EPA Plans for Finalizing EEMs Were Not Accomplished and Potential Air Quality Impacts Continue

The EPA had not published any final EEMs for AFOs, and had not finalized its workplan or established timeframes for completing them. Moreover, progress had been limited since 2013, when the EPA's SAB concluded that draft EEMs developed by the EPA should not be applied on a national scale as intended, and made several recommendations to improve the EPA's statistical analyses. At the time of the Agreement in 2005, the EPA expected that it would begin publishing final EEMs in 2009. Further, the EPA expected that by 2010 the AFO industry would have used the EEMs to assess their emissions, apply for any applicable CAA permits, and install any necessary emission reduction controls.

The EPA collaborated with a committee of external stakeholders to develop a protocol they believed would provide sufficient, representative data for the EPA's EEM development efforts. However, public comments submitted to the EPA on the planned NAEMS protocol, and the 2008 GAO report, questioned whether the NAEMS would provide enough data to produce scientifically and statistically valid EEMs. As a result of the delays, individual AFOs have not applied EEMs to determine whether their air emissions were significant enough to require CAA permits and related emissions controls, while civil enforcement protections for Agreement participants remained in effect.

Development of EEMs Is Years Behind Schedule

Based on the original expectations for completion of the tasks in the Notice, the NAEMS monitoring would have been completed in 2007, and the EPA would have begun publishing EEMs in 2009. By 2010 all facilities would have done the following:

1. Applied the EEMs to determine whether they met or exceeded CAA permitting and/or CERCLA/EPCRA release reporting thresholds, and whether permitting and reporting were required.
2. Submitted any required CAA permit applications and CERCLA/EPCRA release notifications.
3. Implemented the mitigation and emission control requirements described in their permits. At this point, the protections from civil enforcement actions under the Agreement would have ended for participating AFOs.

However, EPA staff told us that this timeline did not account for time required for the EPA's Environmental Appeals Board to approve individual agreements, which took longer than anticipated and was not completed until December 2006. Further, it did not account for monitoring that occurred on a rolling basis, and thus took more than 2 years to complete.

The NAEMS monitoring was completed in early 2010, about 2 years later than originally expected. The EPA began developing draft EEMs after monitoring was completed. In 2012, the EPA placed its draft EEMs on its public website for public comment. Draft EEMs covered eight¹⁶ of the 36¹⁷ emission source and pollutant combinations described in the Agreement. The EPA's Office of Air and Radiation also submitted the draft EEMs to the SAB to obtain feedback on EEM development and related questions. The SAB conducted its review of draft EEMs in 2012 and issued its final report¹⁸ on April 19, 2013.

At the time we finished our review in May 2017, the EPA had not finalized any draft EEMs, or developed any additional draft EEMs. According to the 2005 Agreement, the EPA expected to begin publishing final EEMs within 18 months after completion of the NAEMS monitoring.

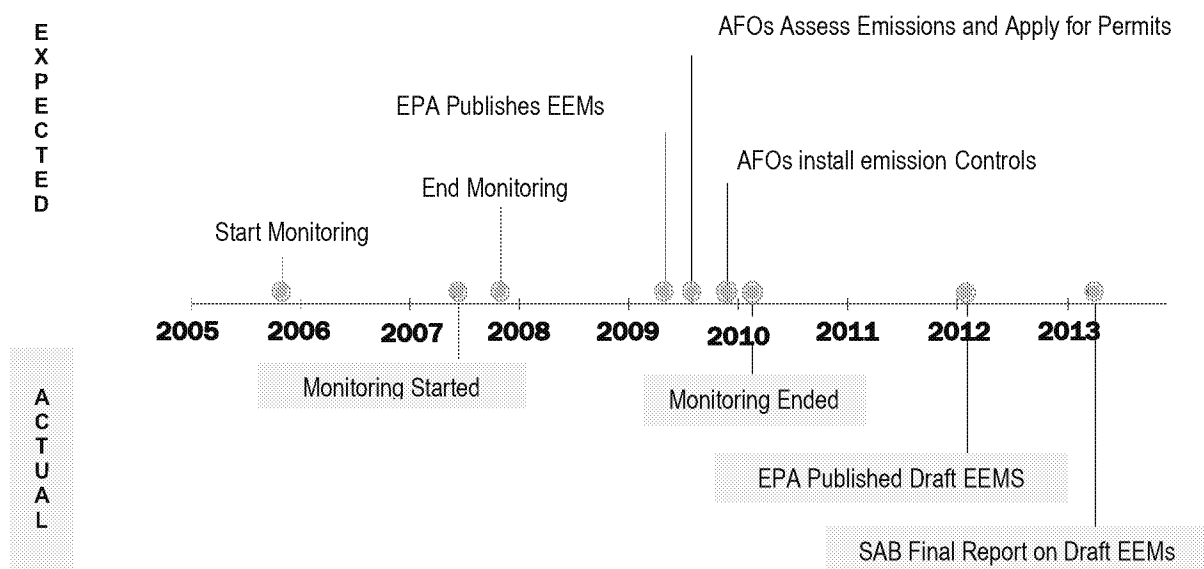
Figure 4 shows a timeline of expected and actual NAEMS and EEM development activities up to the 2013 SAB final report.

¹⁶ These included EEMs to estimate six different types of emissions from broiler chicken houses, and EEMs to estimate ammonia emissions from dairy and swine lagoons/basins. Also, see Table 2.

¹⁷ According to the Office of Air and Radiation, the number of EEMs that will ultimately be developed will be influenced by factors such as differences in production, management and building conditions, as well as availability of sufficient data.

¹⁸ *SAB Review of Emissions-Estimating Methodologies for Broiler Animal Feeding Operations and for Lagoons and Basins at Swine and Dairy Animal Feeding Operations*, EPA-SAB-13-003 (2013).

Figure 4: Expected and actual NAEMS/EEM development timeline



Source: OIG analysis of EPA documents.

Responding to SAB Concerns and a Lack of Resources Slowed Development of EEMs

The SAB identified several concerns with the draft EEMs, and the Office of Air and Radiation did not agree with some of the concerns. Since that time, EEM development slowed considerably, as the EPA decided how to address the SAB's concerns. The EPA also encountered resource constraints and a lack of available technical expertise.

Table 2 shows all emission source and pollutant combinations from the Agreement,¹⁹ and the draft EEMs that were developed and submitted to the SAB for review.

Table 2: Status of EEM development

Pollutant	PM _{2.5}						
	PM ₁₀						
	TSP						
	H ₂ S						
	VOC						
	NH ₃						
		Broiler Chicken Houses	Dairy Barns (NV)	Dairy Barns (MV)	Laying Hen Houses	Swine Barns	Swine Lagoons /Basins
							Dairy Lagoons /Basins
AFO Type/Emission Source							

= Planned, not developed
 = Planned, draft developed

Source: OIG analysis.

PM_{2.5}: Particulate matter < 2.5 micrometers
 PM₁₀: Particulate matter < 10 micrometers
 TSP: Total suspended particulates

H₂S: Hydrogen Sulfide
 VOC: Volatile organic compounds
 NH₃: Ammonia

SAB Review of Draft EEMs and EPA Response

The SAB concluded that the data and methodology used to develop the draft EEMs limited the ability of the models to estimate emissions beyond the small number of AFOs in the NAEMS data set. Specifically, the SAB concluded that the number of sites monitored was too small relative to the size of the industry; the models were based on variables that did not accurately predict emissions; the EPA should not have combined swine and dairy lagoon/basin data; and there were significant limitations with the VOC data for broiler houses. Thus, the SAB recommended that the EPA not apply the current version of the EEMs beyond the AFOs in the EPA's dataset.

¹⁹ This included EEMs for both naturally ventilated (NV) and mechanically ventilated (MV) dairy barns, as discussed in the Agreement.

The SAB made a number of other recommendations, including having the EPA do the following:

- Expand its dataset by collecting data from monitoring efforts outside of the NAEMS, and using NAEMS data that were initially excluded due to the EPA's data completeness criteria.
- Not generate an EEM for VOC emissions from broiler operations based on current data limitations.
- Separate swine and dairy lagoon/basin data that had been combined for EEM development.

The SAB also advocated a process-based modeling approach to EEM development. The NAS had advocated a process-based modeling approach to estimating emissions in its 2003 report. Further, in its 2008 report, GAO recommended that the EPA establish a strategy and timetable for developing process-based emission estimating protocols for CAFOs. The SAB noted the following:

Process-based models would be more likely to be successful in representing a broad range of conditions than the current models because process-based models represent the chemical, biological and physical processes and constraints associated with emissions.

According to the Notice publishing the Agreement, the EPA believed process-based modeling to be a large and complex, multiyear research effort. Therefore, the EPA planned to develop an interim modeling approach, which would be a critical first step to developing a process-based modeling approach. The modeling approach the EPA ultimately selected for the draft EEMs used a statistical software program to analyze the various measurements taken during the NAEMS and identify those variables that predict emissions. The SAB recognized that the EPA may need to apply statistical approaches to assess emissions while it was developing and evaluating process-based models, and thus made recommendations to improve the EPA's chosen approach, as discussed above.

Prior Stakeholder Feedback Questioned the NAEMS Monitoring Approach

The SAB's concerns about the number of monitoring sites being able to support statistically based EEMs was raised in public comments on the Agreement and protocol before the EPA began developing EEMs, and was also raised by GAO in its 2008 report on the EPA's efforts to characterize AFO pollution.

After the NAEMS protocol was made available for public comment in 2005, a number of external groups expressed concerns about the study design and whether it would lead to credible scientific data. Some commenters noted that the number of

sites was too limited to account for all the differences in types of manure management systems, building types, ventilation rates, feeding practices, animal type/age, animal management practices, geography and climate. The commenters noted that even for the types of AFOs monitored, there may not be a sufficient number of samples to establish statistically valid EEMs. Similarly, in its 2008 report, GAO cautioned that the NAEMS may not supply the data needed for the EPA to develop comprehensive EEMs. Further, the GAO report stated that members of the USDA Agricultural Air Quality Task Force had raised concerns about the quality and quantity of data collected, and had pushed for the EPA to review the first 6 months of monitoring data to determine whether the study needed to be revised to yield more useful information.

According to the NAEMS Science Advisor, the NAEMS protocol could be viewed as a compromise between compliance-minded EPA, budget-minded industry, and publication-minded universities. The protocol developers decided on an approach that focused on collecting a comprehensive set of monitoring data (i.e., 2 years of monitoring many different AFO conditions and parameters) at a smaller number of sites, as opposed to collecting a smaller set of data at more sites. According to the EPA, costs were a factor in this decision because mobilizing and demobilizing equipment and then re-deploying at new sites would have depleted funds that could be used for monitoring. The protocol developers believed the chosen monitoring plan would produce sufficient data for EEM development if the selected monitoring sites represented how the majority of animals are raised in the different AFO sectors.

Although the monitoring protocol was developed as a joint effort of researchers knowledgeable about AFO operations and/or monitoring techniques, there was no comprehensive internal or external assessment to determine the amount of data needed to produce scientifically and statistically sound EEMs that could be extrapolated nationwide. The EPA did not perform such an assessment prior to the NAEMS, in part, because it did not know which variables would most impact air emissions at AFOs, and the agency wanted to see the data before selecting a modeling approach for EEM development. Also, the NAEMS protocol and detailed monitoring plans were not peer reviewed to ensure that the NAEMS would provide sufficient data for the EPA to produce a comprehensive suite of EEMs.

EPA's EEM Development Activities Since 2013 Have Been Limited

The EPA planned to continue EEM development using its statistically based approach, and had addressed some of the SAB's recommendations by acquiring additional data sets from other external studies, and reassessing data completeness criteria for the NAEMS. However, the draft EEMs that were submitted to the SAB for review had not been revised, and the EPA had not begun developing EEMs for the remaining 28 emission source and pollutant combinations.

A lack of expertise and resources slowed the agency's work on the EEMs in recent years. According to EPA managers, the agency in recent years did not have staff with combined expertise in agricultural emissions, air quality and statistical analysis. At the time the NAEMS protocol was developed, the EPA had more applicable expertise, but the key staff involved in the NAEMS protocol development retired. Further, competing priorities resulted in the EPA's Office of Air and Radiation putting the EEM effort largely on hold. The EPA had dedicated few agency resources to develop EEMs since the SAB's 2013 final report. The few remaining agency staff who worked on the NAEMS and subsequent data analysis were reassigned to other work, and the EPA stopped funding the contract for NAEMS analysis.

The EPA's most recent draft EEM development work plan, dated March 2016, provided a general framework for how the EPA intended to finish all planned EEMs. The draft plan stated that a new staff person with appropriate expertise, along with student contractor support, would complete the EEMs. The EPA hired the new staff person and a student contractor in January 2017 but had not yet finalized timeframes for completing EEM development.

AFO Air Emissions Remain Largely Uncharacterized and Important Agency Actions Are on Hold

Eleven years after the Agreement was entered, and 7 years after NAEMS monitoring was completed, the EPA, state, local and tribal permitting authorities, and AFO owners/operators, did not have scientifically defensible EEMs needed to make CAA and CERCLA/EPCRA compliance determinations. In addition, the civil enforcement protections for the approximately 14,000 AFOs that participated in the Agreement remained in effect more than 6 years after intended expiration, and several important EPA actions were on hold pending development of the EEMs.

CAA Permit and CERCLA/EPCRA Reporting Determinations Have Not Been Made

Per the Agreement, facilities were not required to determine whether CAA permitting and CERCLA/EPCRA reporting requirements apply to them until the EPA publishes final EEMs. However, once final EEMs are published, participating AFOs are required to use the EEMs to estimate their emissions and come into compliance with applicable CAA and CERCLA/EPCRA requirements.

The Agreement states that a source with emissions exceeding CAA major source permitting thresholds²⁰ would have to do one of the following:

1. Apply for and obtain a permit that contains a federally enforceable limitation or condition that limits the potential emissions to less than the applicable major source threshold for the area where the source is located.
2. Install either best available control technology in attainment areas,²¹ or lowest achievable emission rate technology in nonattainment areas;²² and then obtain a federally enforceable permit that incorporates the appropriate best available control technology or lowest achievable emission rate limit.

Delays in issuing the EEMs resulted in facilities continuing to have civil enforcement protections even if their emissions were exceeding CAA permit or CERCLA/EPCRA reporting thresholds. Given the lack of reliable EEMs, it was difficult to estimate how many facilities could be exceeding these thresholds. However, monitoring conducted as part of an EPA enforcement case in 2003 demonstrated that some large AFOs can exceed the 250-tons-per-year permitting threshold for PM emissions. That monitoring showed total PM emissions of 550 and 700 tons per year at two large egg-layer AFOs.

The NAEMS Science Advisor analyzed NAEMS data for the pork and egg-layer industries, which indicated that pork and egg-layer AFOs could frequently exceed the EPCRA reporting threshold for ammonia of 100 pounds per day. This analysis indicated that pork and egg layer AFOs were unlikely to exceed 250 tons per year of PM₁₀ or VOC emissions. However, the Science Advisor's analysis did not address whether pork or egg-layer AFOs would trigger permitting requirements in poor air quality areas where regulatory thresholds are lower.

Paragraph 38 of the Agreement required the EPA to end civil enforcement protections for those emission sources/types for which the EPA determined it was unable to develop EEMs. As described earlier, the SAB concluded in its 2013 report that the EPA did not have sufficient data to develop an EEM for VOC emissions from broiler houses. Further, more than 7 years since completion of the NAEMS, the EPA had only developed draft EEMs for eight of a possible 36 emission source and pollutant combinations. However, the EPA had not yet determined that it could not develop any of the EEMs, and thus has not waived enforcement protections for any of the emissions sources covered under the 2005 Agreement.

²⁰ Applicable regulatory thresholds range from 10 tons per year in areas with very poor air quality (called extreme nonattainment areas) to 250 tons per year in areas with adequate air quality (called attainment areas).

²¹ A geographic area is generally designated as being in attainment for a particular criteria air pollutant if the concentration of that pollutant is found to be at or below the regulated or "threshold" level for the associated National Ambient Air Quality Standard.

²² A geographic area is generally designated as being in nonattainment for a particular criteria air pollutant if the concentration of that pollutant is found to exceed the regulated or "threshold" level for the associated National Ambient Air Quality Standard.

Agency Actions on Hold

Delays in completing EEMs have also caused important agency efforts to address or mitigate AFO air emissions to remain on hold. The EPA stated it would not take the following actions until the EEMs are finalized because they are needed to inform the agency's decision-making:

Responding to citizen petitions to regulate AFOs. The EPA has received petitions to address AFO emissions in regulations beyond the current permitting CAA provisions, which include a 2009 petition to list and regulate AFOs as a source category under CAA Section 111, and a 2011 petition to regulate ammonia as a criteria pollutant under CAA Sections 108 and 109. EPA staff told us they did not plan to evaluate the need for additional regulations as laid out in these petitions until the EEMs are finalized.

Defining "source" for aggregation purposes. The aggregation of sources pertains to how many individual emission sources are counted together to determine whether a facility exceeds CAA major source status, and thus impacts how many facilities could exceed permitting thresholds. For example, if a barn at an AFO rather than the entire AFO is a "source," fewer AFOs could be impacted by CAA permitting requirements. The EPA had not issued guidance on this issue, and said it planned to do so after developing the EEMs.

In our view, final EEMs are also necessary for the EPA to develop compliance and enforcement strategies for Agreement non-participants, and to assess whether AFO emissions may contribute to disproportionate health risks to certain communities.

Conclusion

The EPA's ability to characterize and address AFO air emissions is unchanged since its 2005 Agreement with the AFO industry intended to produce reliable emissions estimation methods. As a result, individual AFOs have not estimated their emissions to determine whether they are required to implement controls to reduce emissions and/or report their emissions to the appropriate emergency responders. Additionally, other important agency actions pertaining to AFO air emission estimates continue to be on hold.

Timeframes for completing EEM development were uncertain, as staffing and contract support needed to finish EEMs only recently became available and the EPA had not yet finalized its work plan at the time we completed our review. Further, SAB concerns about the EPA's EEM development methodology have not been resolved. Despite these uncertainties, parties to the 2005 Agreement continue to receive protections from civil enforcement actions. We make recommendations in Chapters 3 and 4 of this report.

Chapter 3

EPA Needs to Implement Systematic Planning to Assure That EEMs Have Sufficient Quality

The EPA's planning for EEM development did not describe the desired level of quality needed for the EEMs' intended purpose of estimating individual AFO air emissions nationwide. The establishment of such criteria is a key component of systematic planning for agency projects. In accordance with the agency's data quality policies, EPA organizations should conduct systematic planning to ensure that projects will result in scientific products that are defensible and useful for their intended purpose. The agency's most recent EEM development draft work plan used the terms "appropriate" and "meaningful" to describe final EEM products, but did not explain how those terms would be used to evaluate the quality or acceptability of the final EEMs.

As noted in Chapter 2, the agency's SAB concluded that the EPA's 2012 draft EEMs were not suitable for their intended purpose. Consequently, if the agency does not fully implement systematic planning for future EEM development, the EPA is at risk of producing additional draft EEMs that are not sufficient for estimating air emissions at individual AFOs across the United States.

EPA Quality System

The EPA's Procedure for its Quality Policy²³ establishes management principles and responsibilities for ensuring that EPA products and services meet agency quality-related requirements, and are of sufficient quality for their intended use and support the EPA's mission to protect human health and the environment. The policy applies to agency products and services developed for external distribution or dissemination. Each EPA organization is responsible for implementing the EPA Quality Policy and Program within its organization. Requirements for implementing the program include conforming to the minimum specifications of the American National Standards Institute and the American Society for Quality Control standard, ANSI/ASQC E4-1994.²⁴

²³ EPA Chief Information Officer's CIO Order 2106-P-01.0 (October 20, 2008).

²⁴ *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*, the American National Standards Institute and the American Society for Quality Control (1994). This standard is the basis for the EPA's Quality System.

At the project level, these minimum specifications include the following:

- Using a systematic planning approach (e.g., the data quality objectives process) to develop acceptance or performance criteria covered by the EPA Quality Policy.
- Having approved quality assurance project plans, or equivalent documents, for all applicable tasks involving environmental data.

To implement the EPA's Quality Policy, each EPA organization must develop a quality management plan that describes its quality system, documents its quality policies, and identifies the environmental programs to which the quality system applies. The EPA's Office of Air Quality Planning and Standards (OAQPS) developed a quality management plan that describes options for ensuring that OAQPS projects are of appropriate quality for their intended purpose. These options include elements of systematic planning to ensure that quality considerations are built into a product at the beginning, and consist of (1) developing a quality assurance project plan or similar document, and/or (2) conducting pre-dissemination review (e.g., peer review) of information.

According to the OAQPS quality management plan, quality documentation describes in detail the activities that must be implemented to assure that the results of work will satisfy the stated performance criteria. The performance criteria may be stated in the form of data quality objectives (DQOs). DQOs are qualitative or quantitative statements that clarify project technical and quality objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors (e.g., uncertainty) that will be used as the basis for identifying the data needed to support decisions. EPA quality assurance guidance²⁵ recommends that systematic planning include DQOs when data are to be used to make a regulatory decision or emission estimations.

The DQO process is the agency's recommendation when data are to be used to make some type of decision (e.g., compliance or noncompliance with a standard) or estimation (e.g., ascertain the mean concentration level of a contaminant).

Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4, February 2006

Further, DQOs should be specified for a project before the agency develops its plan for collecting the data, since the DQOs will drive key data collection decisions. For estimation, the guidance states that DQOs are typically expressed in terms of acceptable uncertainty (e.g., width of an uncertainty band or interval) associated with a point estimate at a desired level of statistical confidence.

²⁵ The EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (2006).

The OAQPS quality management plan also provides for the pre-dissemination review of OAQPS information as a way to provide assurance that quality has been built into the information that the office disseminates. The quality management plan cites peer review as an example of pre-dissemination review, and notes that it can be appropriate to incorporate the pre-dissemination review for project planning documents, such as the quality assurance project plan, prior to beginning the project.

EPA Has Not Fully Implemented a Systematic Planning Process to Assure a Desired Level of Quality for EEMs

The EPA's planning process for EEM development had yet to establish data quality objectives describing the performance or acceptance criteria for the final EEMs. While extensive planning went into assuring the quality of the monitoring data collected during the NAEMS, this planning did not describe the desired quality of the end products resulting from EPA analysis of the NAEMS data (i.e., the EEMs), or the type and extent of emissions monitoring data needed to produce EEMs of desired quality.

Planning for Draft Development of EEMs Was Not Systematic

Ideally, under a systematic planning process, a methodology for producing a final product at the desired quality is determined up front. This methodology then drives the data collection efforts. When data are to be used to make some type of decision or estimation, the EPA recommends that the desired level of quality be expressed in the form of DQOs. As noted in Chapters 1 and 2, the EPA collaborated with external scientists to develop the monitoring protocol. However, several factors influenced the scope of the NAEMS, and that effort was not specifically designed to produce data to satisfy acceptance criteria for the EEMs. Among these factors was that, prior to the study, the EPA did not know which variables most impact air emissions at AFOs. Thus, the EPA tried to create an EEM development methodology using the data that was available from the NAEMS.

Unless some form of planning is conducted prior to investing the necessary time and resources to collect data, the chances can be unacceptably high that these data will not meet specific project needs.

Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4, February 2006

The NAEMS protocol stated that the NAEMS and subsequent data analyses and interpretation would allow the EPA and livestock and poultry producers to “reasonably determine” which AFOs were subject to CAA regulatory provisions and CERCLA/EPCRA reporting requirements. However, as part of its planning, the EPA did not define what was meant by “reasonably determine.” The EPA developed a quality assurance project plan for its efforts to develop the draft EEMs that were published in 2012, but it focused on assessing the quality of incoming data from the NAEMS and other sources. The quality assurance project

plan did not include DQOs or other performance criteria defining the acceptable level of uncertainty for EEM predictions, or the quality control measures the EPA would use to assure its statistical models were scientifically and statistically sound.

The EPA had its draft EEMs peer reviewed by the SAB, but the agency did not involve the SAB in its planning process to ensure that the NAEMS would provide sufficient data for EEM development. As discussed in Chapter 2, the SAB concluded that the EPA's draft EEMs were not useful for making compliance determinations nationwide due to problems with the underlying data and analysis.

Plans for Completing Development of EEMs Can Be Strengthened

The EPA had not yet conducted systematic planning for the EEM completion effort, but had developed a draft work plan. That draft work plan contained little information about systematic planning to assure the quality of future EEMs. The plan did not address whether a quality assurance project plan would be developed, or commit to peer review of the planned methodology or the draft or final EEMs.²⁶

The draft work plan described a future scoping study that would allow the EPA to plan activities and resources for developing "appropriate" EEMs, and stated that EEMs developed in the future would be tested to determine whether they can reproduce "meaningful" emissions estimates. However, the work plan did not define or establish acceptance criteria for "appropriate" or "meaningful" EEMs. Staff from OAQPS stated that they planned to make quality planning decisions once the new staff person had been hired to conduct the scoping study and subsequent EEM development.

Conclusion

As explained in the EPA's quality assurance guidance, systematic planning that defines the level of quality required for an end product should be conducted prior to data collection efforts, to reduce the risk that the data collected is not sufficient. Such planning for the EEMs was not conducted prior to the NAEMS or draft EEM development efforts, in part, because the EPA did not have a full understanding of the factors that influence AFO air emissions. Further, the NAEMS protocol and monitoring plans were not developed exclusively to provide data needed for EEM development. Based on its experience and peer review feedback in developing the initial set of draft EEMs, the EPA should be in a better position to conduct systematic planning for the EEM completion effort.

²⁶ In the draft plan, the EPA stated it will provide developed EEMs to "appropriate stakeholders and possibly the Science Advisory Board" for review, and then modify the EEMs based on comments received. However, the plan does not commit to obtaining independent, external peer review of the EEMs or the planned methodology that will be used to develop the EEMs.

Without adequate systematic planning, the EPA is at risk of spending additional time and resources to develop EEMs that still are not sufficient for estimating AFO emissions nationwide.

Recommendations

We recommend that the Assistant Administrator for Air and Radiation:

1. In accordance with EPA quality assurance guidance, conduct comprehensive systematic planning for future emission estimating methodology development through either the quality assurance project plan or pre-dissemination review processes.
 - If the EPA chooses to develop a quality assurance project plan, it should first develop data quality objectives for the emission estimating methodologies.
 - If the EPA chooses to conduct a pre-dissemination review, it should obtain independent, external feedback on the adequacy of its emission estimating methodologies development and plans prior to beginning the project.
2. Based on the results of systematic planning, determine and document the decision as to whether the EPA is able to develop scientifically and statistically sound emission estimating methodologies for each originally planned emission source and pollutant combination.
3. For the emission source and pollutant combinations for which the Office of Air and Radiation determines it can develop scientifically and statistically sound emission estimating methodologies, establish public milestone dates for issuing each draft emission estimating methodology. For any emission source and pollutant combinations for which the Office of Air and Radiation determines that it cannot develop scientifically and statistically sound emission estimating methodologies, notify the Office of Enforcement and Compliance Assurance of that determination.

We recommend that the Assistant Administrator for Enforcement Compliance and Assurance:

4. For any emission source and pollutant combinations for which the Office of Air and Radiation determines it cannot develop emission estimating methodologies, notify Air Compliance Agreement participants of this determination, and that the release and covenant not to sue for those emission sources and pollutant types will expire in accordance with paragraph 38 of the 2005 Air Compliance Agreement.

Agency Response and OIG Evaluation

The Office of Air and Radiation agreed with Recommendations 1, 2 and 3, and provided acceptable planned corrective actions and completion dates. The Office of Enforcement and Compliance Assurance agreed with Recommendation 4 and provided an acceptable corrective action plan.

The agency also provided technical comments that were incorporated into our final report as appropriate. Appendices A and B contain the responses to our report from the Office of Air and Radiation, and the Office of Enforcement and Compliance Assurance, respectively.

Chapter 4

EPA Has Not Updated Some Stakeholders and Public on Current Status of EEM Efforts

The 2005 Air Compliance Agreement between the AFO industry and the EPA generated significant stakeholder and public interest in AFO air emissions, and any actions the agency would take to address those emissions. Leading up to the monitoring study, and for 2 years after monitoring data was available, the EPA provided frequent public updates related to the NAEMS and EEMs. However, since the SAB's 2013 final report, the agency had provided only high-level updates to selected stakeholders. This left many stakeholders and the public uninformed about the current status of the work, the reasons for delays, and current timelines for finalizing the EEMs. The EPA should resume providing public updates on the status of EEM development through its website or other public means, to ensure the transparency of its process and accountability in setting completion dates.

EPA Provided Extensive Public Outreach During Early Stages

The EPA issued four press releases in 2006 announcing individual agreements entered into between the EPA and AFOs. Further, in the years after it received all monitoring data in 2010, the EPA provided frequent updates on EEM development efforts and the SAB's review of draft EEMs. In 2011, the EPA published data from the NAEMS monitoring, issued a Call for Information to collect information to supplement the NAEMS data, and updated the public on processes related to the planned SAB review. In 2012, the EPA released its draft EEMs for public comment.

EPA Has Not Publicly Communicated on EEM Development Efforts Since 2013

Since the EPA posted the SAB's 2013 final report on its public website, the EPA had not updated some stakeholders and the public on recent aspects of its NAEMS data analysis and EEM development efforts. An OAQPS manager told us that the agency planned to post final EEMs on its public webpage, but used other mechanisms to provide updates on the status of EEM development. Such updates were provided only upon request, and typically to groups with which the agency had regular contact, such as the USDA's Agricultural Air Quality Task Force. Numerous interested parties—including the SAB Chair, a SAB panel member, and three external groups—told us that they had no information about the ongoing NAEMS data analysis, the reasons for delays, or how long it might take the EPA to publish final EEMs.

Further, staff at the USDA told us that while they periodically received high-level updates from the EPA at Agricultural Air Quality Task Force and intra-agency

workgroup meetings, they were not aware of the EPA's current plans for completing EEM development. The EPA's 2016 update to the Agricultural Air Quality Task Force provided the SAB's recommendations regarding the draft EEMs, as previous updates had done, and stated that the EPA will continue developing EEMs to account for air emissions from AFOs.

Conclusion

Despite being years behind schedule in finalizing the EEMs, the EPA has not provided public updates since 2013 on the NAEMS data analysis and the agency's current efforts to finalize the EEMs. Thus, stakeholders and the public do not know where the EPA currently stands with respect to EEM development. To ensure transparency and accountability in completing EEMs for the \$15 million investment in the NAEMS study, the EPA should provide public updates on the status of EEM development and establish public milestones for completion of each draft EEM.

Recommendation

We recommend that the Assistant Administrator for Air and Radiation:

5. Provide the public with the status of emission estimating methodology development and the agency's planned next steps for analyzing the National Air Emissions Monitoring Study data and finalizing the emission estimating methodologies, including the completion of milestone dates for each draft emission estimating methodology it plans to develop.

Agency Response and OIG Evaluation

The Office of Air and Radiation agreed with Recommendation 5, and provided an acceptable corrective action plan and completion date. The Office of Air and Radiation also provided technical comments that were incorporated into our final report as appropriate. Appendix A contains the Office of Air and Radiation's response to our report.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS

Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Potential Monetary Benefits (in \$000s)
1	23	In accordance with EPA quality assurance guidance, conduct comprehensive systematic planning for future emission estimating methodology development through either the quality assurance project plan or pre-dissemination review processes. <ul style="list-style-type: none"> o If the EPA chooses to develop a quality assurance project plan, it should first develop data quality objectives for the emission estimating methodologies. o If the EPA chooses to conduct a pre-dissemination review, it should obtain independent, external feedback on the adequacy of its emission estimating methodologies development and plans prior to beginning the project. 	R	Assistant Administrator for Air and Radiation	3/31/18	
2	23	Based on the results of systematic planning, determine and document the decision as to whether the EPA is able to develop scientifically and statistically sound emission estimating methodologies for each originally planned emission source and pollutant combination.	R	Assistant Administrator for Air and Radiation	6/30/18	
3	23	For the emission source and pollutant combinations for which the Office of Air and Radiation determines it can develop scientifically and statistically sound emission estimating methodologies, establish public milestone dates for issuing each draft emission estimating methodology. For any emission source and pollutant combinations for which the Office of Air and Radiation determines that it cannot develop scientifically and statistically sound emission estimating methodologies, notify the Office of Enforcement and Compliance Assurance of that determination.	R	Assistant Administrator for Air and Radiation	6/30/18	
4	23	For any emission source and pollutant combinations for which the Office of Air and Radiation determines it cannot develop emission estimating methodologies, notify Air Compliance Agreement participants of this determination, and that the release and covenant not to sue for those emission sources and pollutant types will expire in accordance with paragraph 38 of the 2005 Air Compliance Agreement.	R	Assistant Administrator for Enforcement and Compliance Assurance	9/30/18 ²	
5	26	Provide the public with the status of emission estimating methodology development and the agency's planned next steps for analyzing the National Air Emissions Monitoring Study data and finalizing the emission estimating methodologies, including the completion of milestone dates for each draft emission estimating methodology it plans to develop.	R	Assistant Administrator for Air and Radiation	6/30/18	

¹ C = Corrective action completed.
R = Recommendation resolved with corrective action pending.
U = Recommendation unresolved with resolution efforts in progress.

² If applicable, based on the Office of Air and Radiation's determination in response to Recommendation 3.

Office of Air and Radiation Response to Draft Report




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 23 2017

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Response to the Office of Inspector General's Draft Report, *Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed* (Project No. OPE-FY16-0018)

FROM: Sarah Dunham 
Acting Assistant Administrator

TO: Carolyn Copper
Assistant Inspector General
Office of Program Evaluation
Office of Inspector General

The EPA's Office of Air and Radiation (OAR) appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report titled "*Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed.*" OAR agrees in general with the OIG's recommendations.

OAR's current task is the development of Emissions Estimating Methodologies (EEMs) for animal feeding operations (AFOs), using statistically-based methodologies to develop emissions factors for select types of AFOs from data collected through the National Air Emissions Monitoring Study (NAEMS). In partnership with the Office of Research and Development (ORD), we are undertaking this effort and incorporating a National Academy of Sciences (NAS) recommendation that the EPA develop an interim method for estimating emissions while we participate in a longer-term effort to develop process-based EEMs. In addition, our work will include objectives outlined in the 2005 Air Compliance Agreement (Agreement) the EPA entered into with participating AFOs. The AFO sectors represented in the Agreement covered the monitoring study costs. Individual participating AFOs did not directly pay monitoring study funds. The EPA remains committed to fulfilling this goal of developing EEMs for AFOs based on scientifically and statistically sound methods. The

statistically-based EEMs must also be easily implemented by the agricultural community and other users, and be based on non-proprietary inputs.

While we generally agree with your characterizations of the Agreement and the associated NAEMS, there are a few places where information in the draft report is slightly unclear where the information differs from our understanding of specific facts. Please refer to the attached list of these instances and suggested revisions intended to help clarify and improve the draft report's accuracy.

Below are OAR's responses to the OIG's specific recommendations (recommendation numbers 1, 2, 3 and 5), which we developed in consultation with ORD. On June 9, 2017, OECA provided a separate response to recommendation number 4 as it is assigned to their office. In the attached technical comments, we provide suggested additional detailed changes in the form of a markup.

Recommendation 1: In accordance with EPA quality assurance guidance, conduct comprehensive systematic planning for future emission estimating methodology development through either the quality assurance project plan or pre-dissemination review processes.

- **If the EPA chooses to develop a quality assurance project plan, it should first develop data quality objectives for the emission estimating methodologies.**
- **If the EPA chooses to conduct a pre-dissemination review, it should obtain independent, external feedback on the adequacy of its emission estimating methodologies development and plans prior to beginning the project.**

Response 1: OAR and ORD agree with this recommendation and have initiated development of a quality assurance project plan (QAPP) for evaluation of the data and completion of the EEMs. As part of the QAPP development, appropriate data quality objectives will be defined. We intend to make this document publicly available on our website (see below).

Planned completion date: FY 2018, Q2 (March).

Recommendation 2: Based on the results of systematic planning, determine and document the decision as to whether the EPA is able to develop scientifically and statistically sound emission estimating methodologies for each originally planned emission source and pollutant combination.

Response 2: OAR agrees with this recommendation. As noted, completion of this task is contingent upon the results and decisions made during the QAPP development. Upon completion of the QAPP, OAR and ORD will determine which EEMs can be completed and the appropriate schedules for their completion. We intend to make the schedules publicly available on our website (see below).

Planned Completion Date: As stated above, development of the QAPP is ongoing with completion anticipated in the second quarter of FY 2018. Upon completion of the QAPP, decisions

on EEM development and schedules will be determined and transmitted to the Office of Enforcement and Compliance Assurance (OECA). We anticipate that the schedules will be established in third quarter of FY 2018.

Recommendation 3: For the emission source and pollutant combinations for which the Office of Air and Radiation determines it can develop scientifically and statistically sound emission estimating methodologies, establish public milestone dates for issuing each draft emission estimating methodology. For any emission source and pollutant combinations for which the Office of Air and Radiation determines that it cannot develop scientifically and statistically sound emission estimating methodologies, notify the Office of Enforcement and Compliance Assurance of that determination.

Response 3: OAR agrees with this recommendation and will develop a schedule for completion of the EEMs after completion of data review and QAPP development, which is currently planned for completion in the second quarter of FY 2018.

Planned Completion Date: As stated above, development of the QAPP is ongoing with completion anticipated in the second quarter of FY 2018. Upon completion of the QAPP, decisions on EEM development and schedules will be determined and transmitted to OECA and made available to the public. We anticipate that the schedules will be established in the third quarter of FY 2018.

Recommendation 5: Provide the public with the status of emission estimating methodology development and the agency's planned next steps for analyzing the National Air Emissions Monitoring Study data and finalizing the emission estimating methodologies, including the completion milestone dates for each draft emission estimating methodology it plans to develop.

Response 5: OAR agrees with this recommendation and will post the schedule on our website for completion of the EEMs after completion of data review and QAPP development, which is currently planned for completion in the second quarter of FY 2018. We anticipate providing updates on our progress with subsequent website postings.

Planned Completion Date: As stated above, development of the QAPP is ongoing with completion anticipated in the second quarter of FY 2018. Upon completion of the QAPP, decisions on EEM development and schedules will be determined and milestones will be made available to the public. We anticipate that the schedules will be established in the third quarter of FY 2018.

If you have any questions regarding this response, please contact Mike Jones, Office of Air Quality Planning and Standards (OAQPS) Audit Liaison, at (919) 541-0528.

Attachment

Office of Enforcement and Compliance Assurance Response to Draft Report




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN - 9 2017

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

MEMORANDUM

SUBJECT: Response to the Office of Inspector General Draft Report: "Emissions from Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed." Project No. OPE-FY16-0018 (May 12, 2017)

FROM: Lawrence E. Starfield 
Acting Assistant Administrator
Office of Enforcement and Compliance Assurance

TO: Carolyn Copper
Assistant Inspector General
Office of Program Evaluation
Office of Inspector General

Thank you for the opportunity to respond to the Office of Inspector General (OIG) Draft Report, "Emissions from Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed" (Draft Report). The Office of Enforcement and Compliance Assurance (OECA) appreciates OIG's careful examination of this issue, and we are committed to following the terms of the Animal Feeding Operations (AFO) Air Compliance Agreement (Agreement) and OIG's recommendation for OECA – Recommendation Number 4. We concur with Recommendation Number 4, and we provide a high-level intended corrective action with an estimated completion date below.

While we generally agree with your characterizations of the Agreement and its associated National Air Emissions Monitoring Study (NAEMS), there are a few places where the Draft Report is slightly unclear or where the information differs from our understanding of specific facts. Enclosed for your consideration, we include a list of these instances and suggested revisions intended to help clarify and improve the Draft Report's accuracy.

OECA has discussed the Draft Report with the Office of Air and Radiation (OAR) and we understand that OAR will be providing a separate response addressing the Draft Report's findings and recommendations for OAR – Recommendation Numbers 1, 2, 3, and 5.

OECA Response to Recommendation Number 4 – Concur

No.	Recommendation	High-Level Intended Corrective Action	Planned Completion Date
4	For any emission source and pollutant combinations for which the Office of Air and Radiation determines it cannot develop emission estimating methodologies, notify Air Compliance Agreement participants of this determination and that the release and covenant not to sue for those emission sources and pollutant types will expire in accordance with paragraph 38 of the 2005 Air Compliance Agreement.	If the EPA determines it cannot develop emission estimating methodologies for any emission source and pollutant combinations, OECA will notify Agreement participants in writing that the EPA has made such a determination and that the release and covenant not to sue will expire in accordance with paragraph 38 of the Agreement.	If necessary, OECA will complete the intended corrective action within 60 days of OAR finalizing its determination.

We concur with OIG's recommendation that OECA notify Agreement participants if OAR determines that it cannot develop emission estimating methodologies for any emission source and pollutant combinations. OECA notes that this recommendation will only require a corrective action if OAR determines it cannot develop emission estimating methodologies for any source and pollutant combinations. Paragraph 38 of the Agreement requires the EPA to notify Agreement participants in writing if the Agency makes such a determination. OECA intends to continue abiding by the Agreement's terms, and we will notify Agreement participants if the Agency determines it cannot develop emission estimating methodologies for any emission source and pollutant combinations.

If you have any questions regarding this response, please contact OECA Audit Liaison, Gwendolyn Spriggs, at 202.564.2439.

Attachment

cc: Susan Shinkman, OECA/OCE
Rosemarie Kelley, OECA/OCE
Lauren Kabler, OECA/OCE
Apple Chapman, OECA/OCE
Tim Sullivan, OECA/OCE

Gwendolyn Spriggs, OECA/OAP
Sarah Dunham, OAR
Robin Dunkins, OAR/OAQPS
Mike Jones, OAR/OAQPS

Distribution

The Administrator
Chief of Staff
Chief of Staff for Operations
Deputy Chief of Staff for Operations
Assistant Administrator for Air and Radiation
Assistant Administrator for Enforcement and Compliance Assurance
Agency Follow-Up Official (the CFO)
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General Counsel
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Career Deputy Assistant Administrator, Office of Air and Radiation
Deputy Assistant Administrator, Office of Enforcement and Compliance Assurance
Audit Follow-Up Coordinator, Office of the Administrator
Audit Follow-Up Coordinator, Office of Air and Radiation
Audit Follow-Up Coordinator, Office of Enforcement and Compliance Assurance

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 7/16/2020 8:26:32 PM
To: Rumsey, Ian [rumsey.ian@epa.gov]
Subject: NAEMS Schedule
Attachments: NAMES_PoultrySchedule_Gantt_Version2.1_NoBroilerMove_07.16.2020.xlsx

Ian,

I've been reviewing the schedule a little more in light of Allison's comments. Would you be willing to chat with me about a couple of questions I have?

Tomorrow is my CDO, so would Monday work? Maybe 9AM or 11AM?

I'll also post the attached version of the schedule without the broiler move to the Teams site.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 3/17/2021 8:40:11 PM
To: Spence, Kelley [Spence.Kelley@epa.gov]
Subject: RE: NAEMS pager?
Attachments: NAEMS Status Update_OAR_06.08.2020.docx

Will this (or parts of it) work?

BD

From: Spence, Kelley <Spence.Kelley@epa.gov>
Sent: Wednesday, March 17, 2021 4:25 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: NAEMS pager?

Hey!

Do you happen to have a NAEMS pager handy that just has some background information and why/what we're working on?

Thanks!
Kelley

Kelley Spence, PhD. | Environmental Engineer | Natural Resources Group – Mail Code E143-03 | Sector Policies and Programs Division | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3158 | Fax: 919-541-0516 |

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 1/28/2021 4:27:02 PM
To: Jason Sloan [jsloan@csg.org]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: AAPCA Emissions Inventory Committee Call
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx

Jason,

Just wanted to send the slides for the meeting in case someone can only join via phone.

Looking forward to talking with you all today.

Bebhinn

From: Jason Sloan <jsloan@csg.org>
Sent: Friday, January 22, 2021 2:14 PM
To: Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: AAPCA Emissions Inventory Committee Call

Bebhinn, Robin,

We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): Ex. 6 Personal Privacy (PP) Conference ID: Ex. 6 Personal Privacy (PP)

[Find a local number](#) | [Reset PIN](#) | [Learn More](#) | [Meeting options](#)

We plan to hand it over to you following the welcome and roll call. Please let me know if you have any questions before next Thursday.

Thanks!

Jason E. Sloan
Executive Director
Association of Air Pollution Control Agencies
1776 Avenue of the States
Lexington, KY 40511
859.244.8043 – office
931.797.0287 – cell
jsloan@csg.org
www.cleanairact.org

From: Do, Bebhinn <do.bebhinn@epa.gov>
Sent: Thursday, January 7, 2021 4:49 PM
To: Jason Sloan <jsloan@csg.org>

Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: AAPCA Emissions Inventory Committee Call

[EXTERNAL EMAIL]

Jason,

The presentation is about 30 minutes long. So we like between 40 – 45 minutes, depending on questions.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Sector Policies and Programs Division, Natural Resources Group
109 T.W. Alexander Drive Research Triangle Park, NC 27711 (Mail Code: E143-03)
(919) 541-0573 | do.bebhinn@epa.gov

From: Jason Sloan <jsloan@csg.org>
Sent: Thursday, January 7, 2021 4:42 PM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: AAPCA Emissions Inventory Committee Call

Robin,

Thank you for the quick response! We can transition this call to be via Microsoft Teams – I'll send a link to join a bit closer to the date.

Do you have an estimated amount of time you would like us to provide?

Thanks!

Jason E. Sloan
Executive Director
Association of Air Pollution Control Agencies
1776 Avenue of the States
Lexington, KY 40511
859.244.8043 – office
931.797.0287 – cell
jsloan@csg.org
www.cleanairact.org

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Thursday, January 7, 2021 4:33 PM
To: Jason Sloan <jsloan@csg.org>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: RE: AAPCA Emissions Inventory Committee Call

[EXTERNAL EMAIL]

Jason,

We do have a presentation and preference would be to do Microsoft Teams. We can create the meeting if you need us to. I'm cc'ing Bebhinn Do, my staff lead on NAEMS. We plan to use the same presentation we've used with other stakeholder groups. Bebhinn and I will do a tag team presentation. I also want to include others on our team to participate/listen.

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.robin@epa.gov

From: Jason Sloan <jsloan@csg.org>
Sent: Thursday, January 07, 2021 3:23 PM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: AAPCA Emissions Inventory Committee Call

Robin,

Thank you for your willingness to provide a NAEMS update on AAPCA's upcoming Emissions Inventory Committee Call. The call is scheduled for January 28 at 3:00 PM Eastern. Following roll call, we will turn the call over to you for the update.

Will you have presentation materials or be providing a verbal update? We currently plan on holding this as a conference call, but can update to Microsoft Teams to accommodate a presentation.

I will touch base closer to the call, but please let me know if you have any questions in the meantime.

Thanks!

Jason E. Sloan
Executive Director
Association of Air Pollution Control Agencies
1776 Avenue of the States
Lexington, KY 40511
859.244.8043 – office
931.797.0287 – cell
jsloan@csg.org
www.cleanairact.org

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 8/24/2020 7:59:32 PM
To: Michael Formica [formicam@nppc.org]; kwesterbeek@smithfield.com; tom.hebert@bayardridge.com
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: Meeting with NPPC - EEMS for swine
Attachments: NAEMS_Swine Draft Models_08.24.2020.pdf

The slides from the presentation are attached.

Please let me know if you have any problem accessing the attachment.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

-----Original Appointment-----

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Monday, August 10, 2020 6:00 PM
To: Dunkins, Robin; Costa, Allison; Banner, Shannon; Schrock, Bill; Do, Bebhinn; Michael Formica; Sullivan, Tim; Yelverton, William; Rumsey, Ian; Dietrich, Yijia; Walker, JohnT; Nash, Maliha; kwesterbeek@smithfield.com; tom.hebert@bayardridge.com
Subject: Meeting with NPPC - EEMS for swine
When: Monday, August 24, 2020 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams meeting see link below

Confirmed date and time w/Mike Formica.

Join Microsoft Teams Meeting

Ex. 6 Personal Privacy (PP) United States, Raleigh (Toll)

Conference ID: Ex. 6 Personal Privacy (PP)

[Local numbers](#) | [Reset PIN](#) | [Learn more about Teams](#) | [Meeting options](#)

By participating in EPA hosted virtual meetings and events, you are consenting to abide by the agency's terms of use. In addition, you acknowledge that content you post may be collected and used in support of FOIA and eDiscovery activities.

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 6/3/2020 2:50:42 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: Carrie brief
Attachments: AgCleanAirAct_Meadows_06.03.2020_final.ppt

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 5/28/2020 6:27:20 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: FW: 6/1 NAEMS briefing
Attachments: NAEMS Overview_052620_wcs.docx

This was the last version I have for the Carrie brief.

BD

From: Crowley, Kate <crowley.kate@epa.gov>
Sent: Thursday, May 28, 2020 7:56 AM
To: Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: 6/1 NAEMS briefing

Hi all,

With an updated date, heading, and edits to address Bill's comments, is this the pager that we will be using for Monday's briefing with Peter?

Thanks,
Kate

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 11/16/2020 2:36:48 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
CC: Schrock, Bill [Schrock.Bill@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
Subject: Presentation for the call @ 3:30 today
Attachments: NAEMS_Swine Draft Models_11.16.2020.pptx

The presentation for the call today is attached. It should be the same presentation as the NPPC meeting.

Let me know if I should add a pdf copy to the meeting invite.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 11/12/2020 4:55:21 PM
To: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: Can you send me slides for today
Attachments: EmissionEstimatingMethodologiesforAFOs_RMNPI_2020.11.12.pptx

Attached. Same as for NACAA.

BD

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Thursday, November 12, 2020 11:52 AM
To: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: Can you send me slides for today

Robin Dunkins, Group Leader
Natural Resources Group
USEPA OAR/OAQPS
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.rob@epa.gov

Message

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 10/22/2020 6:45:26 PM
To: Mary Douglas [mdouglas@4cleanair.org]
CC: Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: RE: NACAA Ag Committee Call
Attachments: EmissionEstimatingMethodologiesforAFOs_NACAA_2020.10.29.pptx

Mary,

I've attached the slides for our talk next week. Feel free to share with the committee.

Best regards,
Bebhinn

Ms. Bebhinn Do
U.S. EPA | OAQPS | Sector Policies and Programs Division | Natural Resources Group
109 T.W. Alexander Drive | Research Triangle Park, NC 27711
Mail Code: E143-03 | Phone: 919 541-0573 | email: do.bebhinn@epa.gov

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Monday, October 19, 2020 12:53 PM
To: Mary Douglas <mdouglas@4cleanair.org>
Cc: Do, Bebhinn <do.bebhinn@epa.gov>
Subject: Re: NACAA Ag Committee Call

Thanks for the reminder.

Robin Dunkins, Group Leader
Natural Resources Group
USEPA OAR/OAQPS
[Research Triangle Park, NC 27711](#)
[919-541-5335](tel:919-541-5335) office
[919-605-1178](tel:919-605-1178) mobile
dunkins.rob@epa.gov

On Oct 19, 2020, at 11:51 AM, Mary Sullivan Douglas <mdouglas@4cleanair.org> wrote:

Hi Robin,

I hope all is well with you. This is just a reminder that the NACAA Agriculture Committee call is next week (Oct 29 from 2-3 p.m. Eastern time). The call-in number is Ex. 6 Personal Privacy (PP) and the access code is Ex. 6 Personal Privacy (PP).

Will you have slides or other info that I can send out in advance of the call? Please let me know and I can get these materials out.

Thanks.

Mary

From: Mary Sullivan Douglas
Sent: Monday, October 5, 2020 12:19 PM
To: Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: Info for NACAA Agriculture Committee call - 10/29 at 2 p.m.

Robin,

Here is the announcement we sent to the committee. It includes the call-in number and passcode you will need for the call.

If you have any slides or other info you wish to share to facilitate the presentation on the call, please let me know and I can distribute it.

Thanks for participating.

Mary

From: Mary Sullivan Douglas
Sent: Monday, October 5, 2020 12:17 PM
To: 'agriculture@lists.4cleanair.org' <agriculture@lists.4cleanair.org>
Subject: RESCHEDULED -- NACAA Agriculture Committee Call, October 29 at 2-3 p.m. Eastern time

TO: NACAA AGRICULTURE COMMITTEE

The next call of the NACAA Agriculture Committee is scheduled for **Thursday, October 29, 2020 at 2:00 to 3:00 PM (Eastern time)**. The call-in number is Ex: 6 Personal Privacy (PP) and the access code is Ex: 6 Personal Privacy (PP). Please note that this call has been rescheduled from the original date and time of October 20 at 2 p.m. (Eastern). That timeslot conflicts with the NACAA Membership Meeting, so we had to change the date.

The agenda for the call is available here: http://www.4cleanair.org/sites/default/files/Documents/20-10-29_NACAA_Agriculture_Committee_Agenda.pdf

Thank you.

****Note new address and number as of Jan 20, 2020*

Mary Sullivan Douglas
National Association of Clean Air Agencies
1530 Wilson Blvd, Suite 320
Arlington, VA 22209

Ex. 6 Personal Privacy (PP)

Ex. 6 Personal Privacy (PP)

www.4cleanair.org

Appointment

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 1/6/2021 6:47:51 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]
Subject: AAPCA Emissions Inventory Committee Meeting
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx
Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Busy

Required Attendees: Do, Bebhinn; Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison; Dietrich, Yijia

We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): Ex. 6 Personal Privacy (PP) / Conference ID: Ex. 6 Personal Privacy (PP)
[Find a local number](#) | [Reset PIN](#) | [Learn More](#) | [Meeting options](#)

Putting a hold on everyone's calendar for the Association of Air Pollution Control Agencies (AAPCA, <https://cleanairact.org/>) Emission Inventory Committee call on January 28 at 3PM Eastern.

This will be an opportunity to present an update on the NAEMS study to their member states. The presentation will be the same as the R7/NACAA slide deck (attached).

I will update with the specific call in information as soon as it is received.

Please let me know if you would like any additional staff added to the invite.

Bebhinn

919 541-0573 | do.bebhinn@epa.gov

Appointment

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 10/14/2020 3:26:31 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]
Subject: NACAA Call
Attachments: 20-10-29_NACAA_Agriculture_Committee_Agenda.pdf;
EmissionEstimatingMethodologiesforAFOs_NACAA_2020.10.29.pptx
Start: 10/29/2020 6:00:00 PM
End: 10/29/2020 7:00:00 PM
Show Time As: Busy

Required Attendees: Dunkins, Robin

**** Added presentation ******

Not sure if you got an official invite. So I thought I would send this to make sure it's in your calendar.

Bebhinn

The next call of the NACAA Agriculture Committee is scheduled for **Thursday, October 29, 2020 at 2:00 to 3:00 PM (Eastern time)**.

The call-in number is Ex. 6 Personal Privacy (PP) and the access code is Ex. 6 Personal Privacy (PP)

Please note that this call has been rescheduled from the original date and time of October 20 at 2 p.m. (Eastern). That timeslot conflicts with the NACAA Membership Meeting, so we had to change the date.

The agenda for the call is available here: http://www.4cleanair.org/sites/default/files/Documents/20-10-29_NACAA_Agriculture_Committee_Agenda.pdf



NACAA AGRICULTURE COMMITTEE CALL AGENDA

**Thursday, October 29, 2020
2:00 to 3:00 PM Eastern**

Call-in Number: Ex. 6 Personal Privacy (PP) **Access Code:** Ex. 6 Personal Privacy (PP)
Press *6 to mute your line and *7 to un-mute it

Committee Co-Chair
Merlyn Hough (Lane County, Oregon)

1. Roll Call and Introductions
2. Schedule for EPA Development of Emission Estimating Methodologies for Animal Feeding Operations – Robin Dunkins (EPA)
<https://www.epa.gov/afos-air/national-air-emissions-monitoring-study>
3. Committee Discussion on Additional Topics – All

Appointment

From: Do, Bebhinn [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE5A954491DF4DD2A084BA5BEFAA11DE-DO, BEBHINN]
Sent: 1/6/2021 6:47:51 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]
Subject: AAPCA Emissions Inventory Committee Meeting
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx
Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Busy

Required Attendees: Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison

We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): Ex. 6 Personal Privacy (PP) Conference ID: Ex. 6 Personal Privacy (PP)
[Find a local number](#) | [Reset PIN](#) | [Learn More](#) | [Meeting options](#)

Putting a hold on everyone's calendar for the Association of Air Pollution Control Agencies (AAPCA, <https://cleanairact.org/>) Emission Inventory Committee call on January 28 at 3PM Eastern.

This will be an opportunity to present an update on the NAEMS study to their member states. The presentation will be the same as the R7/NACAA slide deck (attached).

I will update with the specific call in information as soon as it is received.

Please let me know if you would like any additional staff added to the invite.

Bebhinn

919 541-0573 | do.bebhinn@epa.gov

Message

From: Sullivan, Tim [Sullivan.Tim@epa.gov]
Sent: 8/12/2020 3:00:52 AM
To: Kelley, Rosemarie [Kelley.Rosemarie@epa.gov]
CC: Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: RE: AFO Air Compliance Agreement and NAEMS Update

Thanks, Rosemarie.

Ex. 6 Personal Privacy (PP)

Ex. 5 Deliberative Process (DP)

Thanks again, Rosemarie—talk to you soon.

Tim

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

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From: Kelley, Rosemarie <Kelley.Rosemarie@epa.gov>
Sent: Tuesday, August 11, 2020 4:52 PM
To: Sullivan, Tim <Sullivan.Tim@epa.gov>
Subject: RE: AFO Air Compliance Agreement and NAEMS Update

Tim –

Thanks for suggesting a heads up to Susan.

Ex. 6 Personal Privacy (PP)

Rosemarie

From: Sullivan, Tim <Sullivan.Tim@epa.gov>
Sent: Tuesday, August 11, 2020 11:02 AM
To: Kelley, Rosemarie <Kelley.Rosemarie@epa.gov>
Cc: Sullivan, Tim <Sullivan.Tim@epa.gov>
Subject: AFO Air Compliance Agreement and NAEMS Update

Hi, Rosemarie.

As part of the Animal Feeding Operation (AFO) Air Compliance Agreement and National Air Emissions Monitoring Study (NAEMS), OAR is preparing to publicly post the draft emission estimating methodologies for swine AFOs for informal stakeholder feedback. OAR is aiming to post the draft methodologies in the next week or two. These draft methodologies are the first set that will be shared with the public following the Science Advisory Board's 2013 criticism of the initial draft methodologies and the 2017 OIG Report that focused on the delayed development of the methodologies. In anticipation of posting the draft methodologies, OAR staff prepared the attached update for Anne Austin.

Ex. 5 Deliberative Process (DP)

But, we should consider forwarding the attached update for her awareness since the posting could lead to media inquiries and renewed attention for this topic. I have included a draft e-mail that you could use to transmit the attached update if you think this is update-worthy. Please let me know if you have any questions.

Thanks, Rosemarie

Ex. 6 Personal Privacy (PP)

Tim

-----DRAFT E-MAIL-----

Ex. 5 AC/DP

-----END OF DRAFT-----

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)
Denver, Colorado 80202

Phone: 303.312.6196 | Email: sullivan.tim@epa.gov

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Message

From: Sullivan, Tim [Sullivan.Tim@epa.gov]
Sent: 8/11/2020 3:01:43 PM
To: Kelley, Rosemarie [Kelley.Rosemarie@epa.gov]
CC: Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: AFO Air Compliance Agreement and NAEMS Update
Attachments: NAEMS Status Update_08.07.2020.docx

Hi, Rosemarie.

As part of the Animal Feeding Operation (AFO) Air Compliance Agreement and National Air Emissions Monitoring Study (NAEMS), OAR is preparing to publicly post the draft emission estimating methodologies for swine AFOs for informal stakeholder feedback. OAR is aiming to post the draft methodologies in the next week or two. These draft methodologies are the first set that will be shared with the public following the Science Advisory Board's 2013 criticism of the initial draft methodologies and the 2017 OIG Report that focused on the delayed development of the methodologies. In anticipation of posting the draft methodologies, OAR staff prepared the attached update for Anne Austin.

Ex. 5 Deliberative Process (DP)

But, we should consider forwarding the attached update for her awareness since the posting could lead to media inquiries and renewed attention for this topic. I have included a draft e-mail that you could use to transmit the attached update if you think this is update-worthy. Please let me know if you have any questions.

Thanks, Rosemarie

Ex. 6 Personal Privacy (PP)

Tim

-----DRAFT E-MAIL-----

Ex. 5 AC/DP

-----END OF DRAFT-----

Timothy J. Sullivan
Air Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1595 Wynkoop Street (MC 8MSU)

Denver, Colorado 80202

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Message

From: Kelley, Rosemarie [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=23B7C900323047FCA012DF62C58C4D22-RKELLEY]
Sent: 8/11/2020 11:02:54 PM
To: Susan Bodine (bodine.susan@epa.gov) [bodine.susan@epa.gov]
CC: Starfield, Lawrence [Starfield.Lawrence@epa.gov]; Irving, John [Irving.John@epa.gov]; Koslow, Karin [Koslow.Karin@epa.gov]; Evan Belser (Belser.Evan@epa.gov) [Belser.Evan@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]
Subject: National Air Emissions Monitoring Study Update
Attachments: NAEMS Status Update_08.07.2020.docx

Susan--

We want to make sure you are aware that OAR is preparing to publicly post the draft emission estimating methodologies for swine Animal Feeding Operations in the next week or two. These draft methodologies are the first set that will be published following the Science Advisory Board's 2013 criticism of the initial set of draft methodologies and the 2017 OIG Report that focused on the delayed development of the methodologies. In anticipation of posting these draft methodologies, OAR staff prepared the attached update for Anne Austin.

We are providing this update for your awareness; there are no OECA action items at this time. The posting of the draft methodologies could lead to media inquiries and renewed attention for this topic. Please let us know if you have any questions.

Rosemarie

To: Koerber, Mike[Koerber.Mike@epa.gov]
From: Lavoie, Tegan[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=EB301A7C4E8F47EF898C1DAB1DCF4E3B-LAVOIE, TEG]
Sent: Mon 9/21/2020 5:59:11 PM (UTC)
Subject: FW: Timing of OAR 1:1

Hi Mike,

SPPD sent forward a correction to their NAEMS update from this morning’s 1:1 below. Sending along in case you would like to forward the correction to OAR.

In short, the update originally read:

Ex. 5 Deliberative Process (DP)

In the update above, the highlighted dates are actually their draft internal dates instead of the public release dates. SPPD would like to correct these dates.

Ex. 5 Deliberative Process (DP)

Please let me know if you have any questions.

Thanks,
Tegan

=====

Tegan N. Lavoie, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711
Office: (919) 541-5110 | Cell: (919) 972-1972
Email: lavoie.tegan@epa.gov

From: Costa, Allison <Costa.Allison@epa.gov>
Sent: Monday, September 21, 2020 1:50 PM
To: Lavoie, Tegan <lavoie.tegan@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>
Subject: RE: Timing of OAR 1:1

National Air Emissions Monitoring Study (NAEMS) Status Update

Ex. 5 Deliberative Process (DP)

Hi Tegan,

In the update above, we used our draft internal dates instead of the public release dates.

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Cheers,

Allison

Allison Costa

U.S. EPA | Natural Resources Group | Sector Policies and Programs Division, OAQPS

109 T.W. Alexander Drive (Mail Drop E143-03) | Research Triangle Park, NC 27711

Phone: 919.541.1322 | email: Costa.Allison@epa.gov

*** Current Hours: 6:30 am – 3:00 pm ***

From: Lavoie, Tegan [lavoie.tegan@epa.gov]
Sent: 9/21/2020 12:48:37 PM
To: Koerber, Mike [Koerber.Mike@epa.gov]
Subject: 1:1 topics for Monday Sep 21, 2020
Attachments: RE: OAR position on PFAS incineration - guidance requested; One on One 9-21-20.docx

Good morning Mike,

Here are the topics for today's 1:1 meeting w/OAR.

- AQPD:
See attached.

- SPPD: (Two topics)

1. National Air Emissions Monitoring Study (NAEMS) Status Update: **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

2. The **Oil and Gas Policy Review** was published on 9/14 and the **Technical Reconsideration** was published on 9/15:
 - On 9/14, California and 19 other states, along with 3 cities, filed a petition for judicial review on the final Policy Review.
 - On 9/16, Environmental Defense Fund and 9 other NGOs filed a petition for judicial review on the final Policy Review along with a motion for emergency stay and a motion for summary vacatur. The motions seek to stay and vacate the final Policy Review in its entirety, both its rescission of the NSPS requirements for the transmission and storage sources and its rescission of the methane requirements for the production and processing sources.

On 9/17, the DC Circuit Court ordered an administrative stay of the final Policy Review to review the motion for the emergency stay. The Court order requires EPA's response NLT 9/28. OGC anticipates the need for a declaration from OAR for that response.

- OID:
AirNow System and App Usage During Wildfires: Usage of Airnow.gov increases dramatically with any fire. For instance, during the relatively quiet month of July 2020, AirNow was visited by 290,000 users who viewed just over 1 million pages. • The fires that started in mid-August 2020 led to 3.3 million users and 21 million pages for the month of August. • As of September 16, 2020 the site has already seen 7.7 million users who viewed 49.7 million pages, 14 days before the month's end. The AirNow Team continues to monitor the system and so far, it has held up well to the large loads. The decision to move to a cloud-based hosting system has helped tremendously. Realizing that many citizens are evacuating their homes and must use mobile devices, EPA released a new, improved version of the mobile app in June 2020, just before fire season started. On an average day, the app sees 200-300 sessions. During the current fires, on the Apple iOS platform, we've seen as high as 260,000 sessions in a single day, with 2.1 million sessions from August through September 13. • On the Android platform, as many as 70,000 sessions per day and a total of 781,000 sessions have been recorded through September 13.
- Karl/OAR:
 - **OAR position on PFAS incineration:** See attached email.

Please let me know if you have any questions.

Thanks,
Tegan

=====

Tegan N. Lavoie, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711
Office: (919) 541-5110 | Cell: (919) 972-1972
Email: lavoie.tegan@epa.gov

Message

From: Hagan, Nicole [Hagan.Nicole@epa.gov]
Sent: 5/4/2020 11:01:08 AM
To: Koerber, Mike [Koerber.Mike@epa.gov]
Subject: FW: NAEMS slides for review
Attachments: 01_NAEMS_BackGround_withnotes_KC.pptx; 02_NAEMS_ProcessOverview_WithNotes_KC.pptx

For your review. No comments from me.

Nicole A. Hagan, Ph.D.
U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Phone: (919) 541-3153
Email: hagan.nicole@epa.gov

From: South, Peter <South.Peter@epa.gov>
Sent: Saturday, May 02, 2020 10:39 PM
To: Hagan, Nicole <Hagan.Nicole@epa.gov>
Subject: NAEMS slides for review

Hi Nicole,

SPPD is participating in a virtual interagency meeting with USDA on May 5-6 to initiate discussions on the draft EEMs for swine. Meeting materials are attached for your/Mike's review—SPPD has coordinated with ORD on the content of these slides.

Just wanted to let Mike know. Thanks.

To: Cory, Preston[Cory.Preston@epa.gov]; Harlow, David[harlow.david@epa.gov]; Raymond, Kelley[Raymond.Kelley@epa.gov]; Tardif, Abigale (Abbie)[Tardif.Abigale@epa.gov]; Landeene, Sarah[Landeene.Sarah@epa.gov]; Moor, Karl[Moor.Karl@epa.gov]; Dominguez, Alexander[dominguez.alexander@epa.gov]
From: Koerber, Mike[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9C513901D4FD49F9AB101A6F7A7A863E-KOERBER, MIKE]
Sent: Tue 8/11/2020 6:36:02 PM (UTC)
Subject: Follow-up Items: OAQPS Weekly
[NAEMS Status Update 08.07.2020.docx](#)
[RICE Vacatur CFR Update OAR 08.4.2020.docx](#)
[OMB Determinations for NAAQS 8 10 2020.docx](#)

Here are a few follow-up items from last week’s and this week’s weekly meeting between OAR and OAQPS. Please let me know if you have any questions.

- 1. **RICE** – **Ex. 5 Deliberative Process (DP)**
- 2. **NAEMS** – see attached pager summarizing the recent engagement with USDA on the draft swine emission estimation methods and the plans for next steps
- 3. **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

- 4. **OMB N/S determinations for NAAQS reviews** – see attached table

Draft Emission Models for Swine Animal Feeding Operations

October 29, 2020

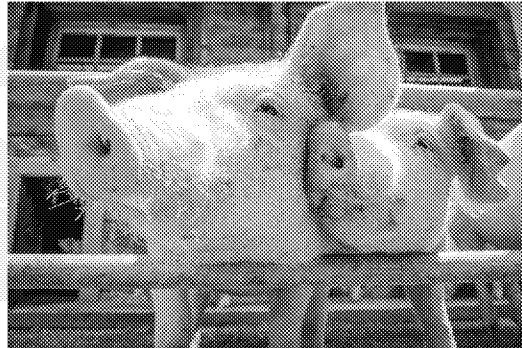


Introduction

- On August 20, 2020, EPA posted draft emission models for animal feeding operations (AFOs) raising swine.
- These draft emission models utilize data collected as part of the National Air Emissions Monitoring Study (NAEMS).
- The emission models provide methods for estimating air emissions of NH_3 , H_2S , and PM (TSP, PM_{10} , $\text{PM}_{2.5}$) from barns, lagoons, and basins at swine operations throughout the country.
- EPA developed approximately 30 emission models for the various emission source and pollutant combinations at swine operations.

Outline

- NAEMS Background
- Emission Models Development Overview
- Improvements from Previous Emission Models
- Uses of the Emission Models
- Limitations of the Emission Models
- Schedule



Background – AFO Air Compliance Agreement (Agreement)

- In 2005, the voluntary Agreement, which includes NAEMS, was initiated in response to a National Academy of Sciences report on the complexity of estimating AFOs' emissions from and industry's concern with ongoing EPA and citizen enforcement activity.
- The Agreement's goals were to:
 - (1) reduce air pollution;
 - (2) monitor AFO emissions;
 - (3) promote a national consensus on emission models; and
 - (4) ensure compliance with requirements of the Clean Air Act (CAA), as well as certain reporting requirements under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Emergency Planning and Community Right-to-Know Act (EPCRA).

8

Air Compliance Agreement

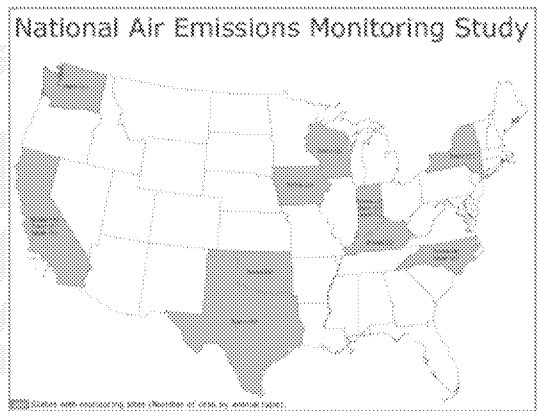
- EPA approved approximately 2,600 Agreements, representing nearly 14,000 participating AFOs.
- Participants paid a civil penalty of between \$200 and \$100,000, based on the size and number of facilities covered by their Agreement. They also were responsible for contributing to a fund to cover the cost of NAEMS.
- As part of the Agreement, EPA agreed not to sue participating AFOs for certain past and ongoing violations of the CAA, CERCLA, and EPCRA during NAEMS, provided that the AFOs comply with the Agreement's conditions.
- Once EPA publishes final emission models for an AFO's animal sector, that AFO must apply the final models to determine what actions, if any, it must take to comply with any applicable CAA requirements.

Agreement Compliance Requirements

- If the emission models demonstrate that a source does not trigger any CAA permitting requirements, the source must certify this outcome to the EPA in writing within **60** days after EPA publishes the emission models applicable to the emission units at that source or facility.
- If the emission models demonstrate that a source triggers CAA permitting requirements, the source must submit all permit applications required by the permitting authority for the source within **120** days.
 - Agreement participants should consult the Agreement for additional specifics related to permitting requirements and control technologies.
 - Farms installing waste-to-energy systems will have an additional **180** days to submit permit applications.
- The annual emissions from a source shall be determined based on current operating methods and on the maximum number of animals housed at the source at any time over the **24** months prior to EPA's publication of the applicable emission models.

NAEMS Overview

- Two-year, industry-funded study resulting from the Agreement.
- Monitored 25 sites (e.g., barns and lagoons) for H_2S , NH_3 , PM and VOCs.
- Species: Swine, dairy, egg-layers and broilers; beef cattle and turkey are not included in this study.
- Sites selected based on representation of animal species and geographic location.



NAEMS Timeline

- **2007 – 2010:** NAEMS monitored farm emissions
- **2013:** First group of draft emission models reviewed by EPA's Science Advisory Board (SAB)
- **2014 – 2016:** Gathered data and conducted analyses per SAB recommendations
- **2017 – 2020:** Issued QAPP for data analysis and revised methodology to develop emission models
- **2020 – 2022:** Issue draft models on a rolling basis, by animal species

Model Development Overview

- Select parameters
 - Considered data quantity and potential ease of measurement for a producer
- Create test models for daily emissions
- Select daily emission model
- Evaluate model
- Develop annual emission estimates and estimates of uncertainty

Models Development: Phases of Swine Production

- Based on literature and data analysis, the different phases of swine production and manure management systems can contribute to differences in emission rates.
- EPA developed separate models for:
 - farrowing rooms
 - gestation barns with shallow pits
 - gestation barns with deep pits
 - grow-finish barns with shallow pits
 - grow-finish barns with deep pits
 - lagoons for breeding-gestation farms
 - lagoons for grow-finish farms
 - basins

Models Development: Daily Model Form

$$Y_p(\ln\{\text{pollutant}\}) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Where:

Y_p is the log transformed emissions

β_0 is a constant

X_i is a predictive parameter (e.g., ambient temperature, wind speed)

β_i is the coefficient for parameter X_i

Model Development: Annual Emissions Estimate

- Estimate annual emissions by summing the daily emissions over the course of a year
- Develop uncertainty estimates for each annual model
- Develop total farm uncertainty by combining the uncertainty for each component of the farm (e.g., barns and lagoons)

Improvements from Previous Emission Models

- Used linear regressions, which prevents inconsistent results for extreme values
- Adjusted parameter selection to include more robust literature review
- Expanded the criteria to evaluate model performance
 - Added residual plots (i.e., model fit plots) and calculated model performance statistics.
- Refined evaluation approach to the “minus-one-house” technique, which is a more refined statistical approach with temporally correlated data

Uses of the Emission Models

- These models *estimate* emissions.
- Air Compliance Agreement participants ***must*** use the final models to determine whether their emissions trigger certain Clean Air Act permitting requirements.
- Other swine AFOs ***may*** use the final models to determine whether their emissions trigger certain Clean Air Act permitting requirements.
- The final models may also be useful for general estimates of emissions from swine operations across the US or comparisons between operations in different regions.
- The current *draft* models should ***not*** be used for these purposes until they are finalized.
- When the models are final, EPA will provide a tool that will apply the models to estimate emissions for farms.

Limitations of the Emission Models

- The models do not estimate emissions from all pollutants, or all emission sources found on swine operations.
- The models do not incorporate all the site-specific management factors that can affect emissions.
- The models cannot be used to quantify impacts of best management practices on emissions.

Schedule

Date	Milestone	Status
September 2019	Call for information for additional VOC data	Complete
August 2020	Draft models for ammonia, hydrogen sulfide and particulate matter emissions from swine farms	Complete
June 2021	Draft models for ammonia, hydrogen sulfide and particulate matter emissions from poultry (broiler and layer) farms	In Progress
December 2021	Draft models for ammonia, hydrogen sulfide and particulate matter emissions from dairy farms	
February 2022	Draft models for volatile organic compound emissions from swine, poultry and dairy farms	
TBD	Stakeholder review period	
TBD	Finalization of all AFO emission models	

- Schedule is available on the project website: www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status

Contact Information

www.epa.gov/afos-air/national-air-emissions-monitoring-study

NAEMS@epa.gov

This report is an external draft for review purposes only and does not constitute U.S. Environmental Protection Agency policy.



Appendix: Swine Emission Models

Emission Models: Farrowing Rooms

Manure Management System	Pollutant	Intercept	Cycle day	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
All	H ₂ S	2.142329	0.129797		0.061406	
All	NH ₃	0.68875	0.001961	0.000581	0.008405	
All	PM ₁₀	2.489915	0.055625		0.106263	-0.003436
All	PM _{2.5}	-1.21456	0.075902		0.256357	
All	TSP	2.858928	0.070551		0.147305	-0.004908

Emission Models: Breeding and Gestation Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified/No Pit	H ₂ S	2.077258	0.003547	0.019862	
	NH ₃	0.154785	0.006855	0.009122	
Deep	H ₂ S	3.171852	0.003844	0.019592	
	NH ₃	0.834777	0.011778	0.007899	
Shallow	H ₂ S	2.130472	0.003844	0.019592	
	NH ₃	0.30747	0.011778	0.007899	
All	PM ₁₀	5.186761		0.005472	-0.007661
	PM _{2.5}	4.88715		0.0007	
	TSP	5.533966		0.006601	-0.008

Emission Models: Grow-Finish Barns

Manure Management System	Pollutant	Intercept	Ambient Temperature (°C)	Live Animal Weight (thousands of kg)	Ambient Relative Humidity (%)
Not Specified (No Pit)	H ₂ S	4.081979	-0.006592	0.017163	
	NH ₃	1.236262	0.008953	0.008939	
Deep	H ₂ S	4.991579	-0.005539	0.013317	
	NH ₃	1.342386	0.009077	0.008545	
Shallow	H ₂ S	4.190492	-0.005539	0.013317	
	NH ₃	1.142239	0.009077	0.008545	
All	PM ₁₀	5.503943		0.010447	-0.009403
	PM _{2.5}	2.49543		0.01095	-0.002279
	TSP	6.26614		0.011813	-0.008831

Emission Models: Lagoons and Basins

Source	Operation Type	Pollutant	Intercept	Ambient Temperature (°C)	Wind Speed (ms ⁻¹)
Lagoon	Breeding - Gestation	H ₂ S	4.435746		0.236141
Lagoon	Breeding - Gestation	NH ₃	0.582053	0.055673	0.091428
Lagoon	Grow-Finish	H ₂ S	3.694758		0.279011
Lagoon	Grow-Finish	NH ₃	-0.680078	0.085372	0.131932
Basin	Grow-Finish	H ₂ S	0.4689	0.027	
Basin	Grow-Finish	NH ₃	1.5049	0.01171	

Appointment

From: Do, Bebhinn [do.bebhinn@epa.gov]
Sent: 1/6/2021 6:48:27 PM
To: Do, Bebhinn [Do.Bebhinn@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Banner, Shannon [banner.shannon@epa.gov]
CC: Rumsey, Ian [rumsey.ian@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Dietrich, Yijia [Dietrich.Yijia@epa.gov]
Subject: AAPCA Emissions Inventory Committee Meeting
Attachments: EmissionEstimatingMethodologiesforAFOs_AAPCA_2021.01.28.pptx
Start: 1/28/2021 8:00:00 PM
End: 1/28/2021 9:00:00 PM
Show Time As: Busy

Required Attendees: Do, Bebhinn; Schrock, Bill; Dunkins, Robin; Sullivan, Tim; Banner, Shannon
Optional Attendees: Rumsey, Ian; Yelverton, William; Costa, Allison; Dietrich, Yijia

We look forward EPA's NAEMS presentation for AAPCA's Emissions Inventory Committee Call on **January 28 at 3:00 PM Eastern**. Below is the link (and optional conference line) to join the call, which will be via Microsoft Teams:

Microsoft Teams meeting: [Click here to join the meeting](#)

--OR--

Call-in (audio only): (b) (6) / Conference ID: (b) (6)

[Find a local number](#) | [Reset PIN](#) | [Learn More](#) | [Meeting options](#)

Putting a hold on everyone's calendar for the Association of Air Pollution Control Agencies (AAPCA, <https://cleanairact.org/>) Emission Inventory Committee call on January 28 at 3PM Eastern.

This will be an opportunity to present an update on the NAEMS study to their member states. The presentation will be the same as the R7/NACAA slide deck (attached).

I will update with the specific call in information as soon as it is received.

Please let me know if you would like any additional staff added to the invite.

Bebhinn

919 541-0573 | do.bebhinn@epa.gov

Message

From: Striegel, Megan [Striegel.Megan@epa.gov]
Sent: 1/19/2021 6:29:45 PM
To: Ayres, Sara [Ayres.Sara@epa.gov]; Jones, Doug [jones.doug@epa.gov]; Meadows, Carrie Vicenta [Meadows.CarrieVicenta@epa.gov]; Miller, Amy [Miller.Amy@epa.gov]; Nyman, Robert [Nyman.Robert@epa.gov]; Park, Susan [Park.Susan@epa.gov]; Peak, Nicholas [Peak.Nicholas@epa.gov]; Perrin, Rebecca [Perrin.Rebecca@epa.gov]; Rush, Randall [Rush.Randall@epa.gov]; Shenk, Kelly [shenk.kelly@epa.gov]; Striegel, Megan [Striegel.Megan@epa.gov]; Subramanian, Hema [Subramanian.Hema@epa.gov]; Syed, Sharmin [Syed.Sharmin@epa.gov]; Winnett, Steven [winnett.steven@epa.gov]; Wood, MelanieL [Wood.MelanieL@epa.gov]
Subject: Agriculture Office TP's 2021
Attachments: Ag TPs 1.2021 CLEAN .docx

Hey all—

As I'm sending this, I know there are announcements from late last week at the agency that were not included on this version! This is not a OneDrive link, but attached as copies. Please give feedback to the office on ways we can improve these in the future, and there will be a place for this to be housed whether on Sara's OneDrive, or Teams for y'all to have easy access.

Thank you!

Megan Striegel
Special Advisor
Agriculture Advisor's Office
(O): 202-564-2591
(C): 202-603-7288

Message

From: Subramanian, Hema [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=65E089600E8B4724A2E85997849BD208-SUBRAMANIAN, HEMA]
Sent: 6/22/2020 5:33:30 PM
To: Megan Striegel [striegel.megan@epa.gov]
Subject: FW: NAEMs Follow Up w/ Ag Advisor
Attachments: NAEMS Status Update_06.22.2020.docx

From: Dunkins, Robin <Dunkins.Robin@epa.gov>
Sent: Monday, June 22, 2020 11:11 AM
To: Striegel, Megan <Striegel.Megan@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>; Schrock, Bill <Schrock.Bill@epa.gov>; Do, Bebhinn <do.bebhinn@epa.gov>; Meadows, Carrie Vicenta <Meadows.CarrieVicenta@epa.gov>
Cc: Subramanian, Hema <Subramanian.Hema@epa.gov>
Subject: RE: NAEMs Follow Up w/ Ag Advisor

Robin Dunkins, Group Leader
Natural Resources Group
OAR/OAQPS/SPPD Mail Code: E143-03
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
919-541-5335 office
919-605-1178 mobile
dunkins.robin@epa.gov

-----Original Appointment-----

From: Striegel, Megan <Striegel.Megan@epa.gov>
Sent: Friday, June 19, 2020 1:52 PM
To: Striegel, Megan; Costa, Allison; Schrock, Bill; Do, Bebhinn; Dunkins, Robin; Meadows, Carrie Vicenta
Cc: Subramanian, Hema
Subject: NAEMs Follow Up w/ Ag Advisor
When: Monday, June 22, 2020 1:30 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Ex. 6 Personal Privacy (PP)